Antiquity

A Quarterly Review of Archæology

Edited by O. G. S. Crawford, F.S.A.

SEPTEMBER 1929

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BEQUEST OF SAMUEL GRANT OLIPHANT
1937

THE CITY OF LONDON

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PLATE I

PREHISTORIC CIRCLES AND WOODEN POST-HOLES NEAR NORWICH, DISCOVERED FROM THE AIR, 18 JUNE 1929

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facing p. 257

Antiquity

A Quarterly Review of Archæology

VOL. III NO. 11 SEPTEMBER 1929

Editorial Notes

ANOTHER Woodhenge has been found, just outside the City of Norwich. Like the first it was discovered from the air by Wing Commander Insall, V.C., who was flying over it, pin-pointing, on 18 June last. The discovery was accidental, in the sense that it was totally unexpected, and it is of the first order of importance.

The site (which is illustrated on plate I opposite) lies in a grass field called Bridge Meadow, in the northern corner of the parish of Arminghall (Norfolk, 6-inch sheet 75 NE) opposite Old Lakenham. It consists of two concentric rings surrounding a circle of 9 dark spots representing without doubt wooden post-holes. The rings are revealed by the dark green grass which grows upon them and which contrasts strongly with the parched brown grass of the rest of the field. It is a gift of the drought. The rings represent ditches of which no other sign is visible. The soil is a sandy gravel. The outer ring is 10 feet wide; it is partially obscured on the south by a modern hedge and by an old field-bank running from a tree to the hedge at an acute angle. The inner ring is 25 feet wide and broken on the south-west by a gap or causeway about 14 feet wide. The holes have a diameter of 6 to 7 feet.

We visited the site with the finder on 26 June and it was possible to see both circles and holes marked out in the grass with the utmost clearness; the line of division between brown and green was sharp and distinct, enabling the dimensions to be taken with considerable accuracy.

The rings surround a knoll, and the interior of the circles is a saucer-shaped depression which has the appearance of having been hollowed out. There is no indication of anything at the centre. (The large dark splodge east of the gap is a patch of stinging-nettles growing over the outflow of a modern drain, and there are other smaller patches visible near by). The river Yare is less than a quarter of a mile distant on the north-west. Not far off is a small circle whose ditch (of varying dimensions) is 8 feet wide on the north side. There is a hint of another circle (perhaps double) in the barley field on the opposite side of the road, due south of the new Woodhenge.

Before discussing the general bearings of the discovery we must describe another and almost equally important one made during the same flight. It consists of two concentric rings, but here the outermost ring is the wider of the two ; they are both perfect and unbroken by any gaps (plate II). The position is just over half a mile south-west of the new Woodhenge, on a tongue of land forming a promontory between the Yare and the Tas, just before they unite. The field is sown with barley, and the circles are revealed by the darker green growth above the silted-up ditches. Not only is the barley darker in colour, but it is also as much as six inches higher. There is a distinct suggestion of something inside the inner circle. There can be no doubt that these circles represent a disc-barrow, and that the narrow inner ring surrounded the small central burial-mound. The site is a gravelly hillock ; but it is not, like the other, saucer-shaped on the summit. Outside on the south-west is a mysterious D-shaped enclosure. The field is in the parish of Markshall and is called Monks on the tithe-map of 1840. The site is a mile north of the Roman town of Caistor (Venta Icenorum) of which an air-photograph was published in our last number. The Ordnance Map marks several other antiquities in the neighbourhood.

There is a strong probability that the Norfolk Woodhenge is contemporary with the neighbouring disc-barrow. A similar and even closer association occurs at the original Woodhenge in Wiltshire, which, as many of our readers will remember, was also first announced in ANTIQUITY (Vol. I, plate opposite page 92). There, in the foreground, is a disc-barrow in which was found later a beaker and skeleton. The interment was furthermore proved to be contemporary with

Woodhenge. What does all this indicate? That Woodhenges and disc-barrows (to say nothing of Stonehenge) were the work of the Beaker-folk who invaded England at the end of the neolithic period of this island, and who probably brought with them the knowledge of metal. Now the evidence of the beakers themselves shows, as Lord Abercromby pointed out long ago, that the invaders came from somewhere near the mouth of the Rhine; and this is precisely where timber circles are most abundant at the same period (see ANTIQUITY, I, 100).

Norfolk is for geographical reasons precisely where one would expect to find scattered traces of the Beaker-folk, though hitherto they have been rare. A few beakers have been found in the district west of Cromer and a few more in the west of the county. An account of some newly discovered beakers in East Anglia is published by Mr J. Reid Moir in *The Antiquaries Journal*, July 1929, pp. 250–3. One would however not expect the barren gravelly heaths ever to have been capable of supporting a large population; and large concentrations like those of Wiltshire or the Yorkshire Wolds must not be looked for. We may confidently hope, however, for fresh discoveries to be made from the air, especially during dry years like the present. The beaker-regions, whose existence already has been established, round Colchester and Ipswich and on the Fenland shores south of Brandon, would well repay search from the air.

Caistor itself is, this year, a complete blank; not even the streets are visible from the air—only the area excavated. On the opposite side of the river however, an air-photograph reveals many interesting marks, the most interesting unfortunately being only partially included.

A movement is on foot to establish a School of Archaeology in Iraq, with its headquarters at Baghdad. The idea originated with Gertrude Bell, who bequeathed a sum of money on trust for this purpose; and the new foundation will be a suitable memorial of the great work she carried out there. By means of scholarships or appointments, the School will, it is hoped, provide British students with greatly needed facilities for study in the country. But the number of such students is not at any time likely to be large; and the main object of the School will be to encourage, support and undertake archaeological

research in the widest sense of the word, including excavation. Sir Edgar Bonham Carter has undertaken to act as Honorary Secretary, and he will be glad to hear from any persons interested in the proposal. (His address is 17 Radnor Place, London, W.2). An effort is being made to raise a capital fund with which to carry on the School for at least five years.

The proposal has our cordial sympathy and support. A School of Archaeology in Baghdad might perform many useful functions. If it were no more than an Intelligence Bureau, it would serve a useful purpose ; for, strange as it may seem, there is no British Society exclusively devoted to the archaeology of Iraq, and information about it is by no means easily obtained.

But the School might do much more than this. There are few countries where field-archaeology pure and simple, without excavation, can achieve so much. The whole land is covered with ancient sites which can be recorded by photography, measured plans and written record. Furthermore, though we almost fear to weary our readers by over-insistence, no country in the world is more suitable for air-photography, and nowhere is such a rich harvest waiting to be gathered in. The climate is sunny ; the authorities are sympathetic ; and many of the officers of the Royal Air Force are keen though at present without much guidance from archaeologists. The existence of a School of Archaeology might remedy this.

As an example of the sort of work to be done we might mention Miss Gertrude Bell's book *Amurath to Amurath*. It records little excavation ; but it is full of plans and descriptions of important sites, many of them up to then almost unknown. Dr Herzfeld's four volumes (*Archäologische Reise im Euphrat- und Tigris-Gebiet*, 1911–20) are another instance of the value of a topographical survey of antiquities. Had air-photography been available for these writers the value of their work would have been immensely increased and their labours proportionately lightened. They would also have made many other new discoveries.

An important discovery was communicated too late for comment in these Notes. Details will be found on page 350.

Town and Country in Roman Britain

by R. G. Collingwood

THE second edition of the Ordnance Survey Map of Roman Britain gives us what we have never had before—a detailed account of the distribution of population over a large tract of the Roman Empire. Hitherto it has been impossible to say what principles governed the distribution of population during that period; and the result has been that everything written about the population of the Roman Empire has been somewhat vague and inconclusive, and has generally been confined to sweeping generalizations founded on induction from a very few facts, or to mere repetition of isolated statements, some doubtless true, others perhaps exaggerated or misleading, made by ancient writers.

For Britain, all this is changed by the publication of the new map; and in the following pages I shall try to point out some of the ways in which new light can be now thrown on old problems by a little elementary map-reading.

What was the total population of Roman Britain? It varied, no doubt, at different times; but no estimate that I can offer is close enough to be much affected by these variations. The total population of the Empire at the birth of Christ has been estimated at 70 millions; about A.D. 300, at 50 millions or less.[1] It is generally said that the total population was falling more or less throughout the Imperial period, and it is possible that this decline affected every part of the Empire to some extent.[2] Now, taking the latter figure, and allowing for the facts that the eastern provinces were far more densely inhabited than the western, and that one-seventh of the whole population of the Empire is accounted for by Egypt alone, it is difficult to conceive any distribution of the remainder which could allow to Britain more than half a million or at most a million inhabitants.

[1] Stein, *Geschichte des spätrömischen Reiches*, 1928, vol. 1, p. 3.

[2] Seeck, *Geschichte des Untergangs der antiken Welt*, book 1, ch. 5. The evidence of a decline in population there quoted is voluminous and impressive, but one must beware of generalizing from instances of alleged depopulation which, if typical, would forbid us to think that there can have been any population whatever left in the Empire after a few generations. Rostovtseff, *Social and Economic History of the Roman Empire*, 1926, p. 328, has argued that the decline in question was probably confined to Greece and Italy, and adds that many cities in Africa and elsewhere increased steadily in size up to the fourth century at least. He does not apply this dictum to Britain, nor, I think, would it be true if so applied.

Another line of approach would be to work backwards from the estimated population of England and Wales in the Middle Ages.[3] In 1066 this is reckoned at a million and a half ; in 1415 at 3 millions ; that is, it has doubled itself in 350 years, and in another 350 years it has rather more than doubled itself again, having reached 7 millions in 1760, the date usually assigned to the beginning of the industrial revolution. Working backwards from 1066 according to the same formula, we get three-quarters of a million in A.D. 700, after the Anglo-Saxon settlement has taken place. This suggests that the population of Roman Britain, at any rate towards the end of its history, was considerably less than three-quarters of a million. It may be replied that this argument ignores the carnage that accompanied or preceded the Anglo-Saxon settlement. But, however great this carnage was (if indeed it took place at all), experts are agreed that warfare and massacre have little effect on the density of populations. For instance, Seeck brings forward evidence to show that ' it was not the sword, but the lack of births, that depopulated the ancient world ' (*op. cit.*, I, 350) ; and Professor Carr-Saunders points out that the determining factor in all populations must be the extent to which the natural power of increase is allowed to have full play, and argues that ultimately the density of every population depends on the available food-supply, which again depends largely on the technical skill of the food-winners (*op. cit.* pp. 10–11, and *seqq.*). Losses due to war, on this view, are quickly made good, so long as the war has not caused a permanent shrinkage of the food-supply.

A third line of approach—the only one that can give results of any real value—is to take the map and work out a detailed estimate. I have done this as well as I can, making a generous allowance for inhabited places not marked on the map ; and the result—after a process of calculation whose outlines I have set forth in an appendix—comes out at half a million. The fact that this estimate agrees very well with those arrived at by rougher methods may encourage us to accept it as a working hypothesis.

The reason why it is worth while to ascertain the total population of a given country, at a given time, is that a necessary relation exists between the density of a population and the way in which it lives.

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[3] I use the figures given in Carr-Saunders, *Population*, 1925, p. 7, and take the opportunity of expressing my debt to that admirable book, and to the same author's larger work on *The Population Problem*, Oxford, 1922.

Thus a figure, expressing the number of inhabitants to the square mile, is a valuable index of the economic condition of the country. 'It is very unusual', says Professor Carr-Saunders,[4] 'for a race that has no knowledge of agriculture to reach a greater density than one to the square mile. How sparse a population such a figure indicates may be gathered when we recall that in 1921 there were in England and Wales 649 people to each square mile. Among races that practise a primitive form of agriculture the number may rise from something over 1 to 10 or 20 or even to 30 or 40 to a square mile . . . The more skilled a race is, the denser is its population, at least as a general rule. Agricultural races are more skilled than hunting races, and have as a rule denser populations; while the more skilled agricultural races have a denser population than the less skilled agricultural races'.

Now the population of Roman Britain, according to our estimate, works out at under 9 to the square mile. Contrast this with 26 in 1066, 52 in 1415, or 99 in 1714, and the extreme thinness of the Romano-British population is at once apparent. The inference is that the Romano-Britons 'practised a primitive form of agriculture', and not only that but stood quite low down in the scale of even primitive agricultural methods.

This inference will, perhaps, be regarded with disfavour by people who are impressed by the high civilization of Roman city life and the magnitude of Rome's political and legal achievements. Generalizing from these facts, one is tempted to imagine that other sides of Roman life must have had an equally modern or advanced character, and—in the absence of statistical information—to assume that Rome introduced scientific agriculture into the provinces she conquered, as a modern imperial power would. Assumptions of this kind are at the bottom of a good many misunderstandings and unsolved problems connected with the economic and social life of the Empire and its ultimate political fate. In the course of this paper I shall try to show that the conception of the primitive character of economic life in Roman Britain fits the known facts like a glove, and suggests a reading of Romano-British history which makes it more intelligible than it has hitherto been.

Before going into further detail, a criticism must be forestalled. It will perhaps be said that the low density-figure of ancient Britain was due to warfare, or to the barrenness of the country, or to the cultivation of the worse soils because the better were not available, or to Roman misgovernment, or in short to some cause other than the primitive

[4] *Population*, pp. 10–11.

character of British agriculture. But these suggestions can be easily answered. The tribal warfare of the pre-Roman period cannot have influenced the population very seriously, for the reasons already stated above ; and, if it had done so, the population ought to have risen enormously under Roman rule. But however much it rose, if it never rose above 9 to the square mile it never got beyond the stage of a very primitive agriculture. As for the barrenness of the country, Britain is not a barren country, and the ancients did not think it was. Tacitus, for instance, expressly says that it is fertile, although unsuited to the olive and vine.[5] It is true, as we shall see, that the Romano-Britons did cultivate the worse soils ; but that was just because their agricultural methods were primitive. And very likely the Romans misgoverned the country in many ways ; but mere misgovernment will not impoverish and depopulate a country unless it takes the form of initiating or perpetuating uneconomic methods of production. In short, no other explanation can be accepted for the fact that the population of Roman Britain never, in nearly 400 years, rose above 9 to the square mile, than the consistently primitive character of Romano-British agriculture.

This becomes even plainer when we turn from the total numbers, and the average density, to the distribution. One of the most valuable features of the new map is the plotting of primeval forest areas, based on a detailed study of the topography of soils. Now, when one examines the map with an eye to geology, relief, and the distribution of woodlands, a very remarkable fact emerges : namely that the Romano-British population lived on soils that could be tilled without clearing forests or draining. They inhabited the chalk downs, the oolite plateaux, and in general the high-lying permeable or naturally-drained soils.[6] There

[5] *Agricola*, XII, 4.

[6] There seems to be a certain difference of opinion among geographers and botanists as to how far these chalk and oolite uplands were originally free of timber. Thus, in the recent regional study of *Great Britain* edited by Dr Ogilvie, Cambridge, 1928, Professor Tansley says that ' with pasturing excluded chalk grassland would be occupied by scrub and beech forest ' (p. 25), and Professor Rishbeth (p. 75) takes the same view but quite fails to show why, if that is so, these lands were so emphatically chosen as a residence by primitive agricultural man. On the other hand, in the same volume (p. 137) Mr Beckit says ' it is virtually certain that the heavy undrained clays of the lowlands were covered primevally with forest or swamp, while the uplands, the home of the earliest inhabitants, were relatively clear '. For my purpose it does not much matter which of these two views is correct, so long as it is admitted that the uplands in question (*a*) were less intractable to primitive man than the lowlands because anyhow they did not need draining, and (*b*) had already been largely cleared, if they needed clearing, before the Roman period began.

are hardly any Romano-British inhabited sites in places where settlement and cultivation would require a preliminary clearing of surplus wood or surplus water. And this is broadly true not only of the humbler villages, but even of the villas, the agricultural establishments of men who (one would suppose) had plenty of capital to sink in such work had they thought fit to do it. Here and there, no doubt, a villa may be found in a forest-clearing ; but these are rare, and do not invalidate the general rule that Romano-Britons lived on naturally cultivable soils, that is, soils which required practically no capital expenditure to bring them into cultivation.

In choosing naturally cultivable soils for inhabitation, the Romano-Britons followed prehistoric usage. All over the country the pre-Roman inhabitants of the early Iron Age had chosen just these soils for their settlements. Thus in the more mountainous parts of England and Wales the early Iron Age settlements occur almost universally on the shoulders of the mountains, high-lying ground which now is utterly uninhabited ; and the reason is, without doubt, that the valley-bottoms were not yet cleared of forest and marsh, so that the 'ancient Britons' were driven to cultivate the miserable soils of the mountain-side because they could not face the capital expenditure of clearing the better soils of the valley.

On the other hand, this usage, common to the pre-Roman and Roman inhabitants, was abruptly deserted by the Anglo-Saxon settlers. In their original home we know that the Germanic tribes were accustomed to cultivate forest-clearings ; and they carried this custom with them when they came to Britain. Mr O. G. S. Crawford has shown[7] that in Wessex the Saxon settlements lie along the river-valleys while the Celtic villages lie on the plateau above. Subsequent investigation, which has proceeded apace in the last few years, has amply confirmed that generalization ; and it is broadly true for the rest of England as well. Exceptions certainly occur. In some places Celtic villages exist in low country beside rivers or in marshes ; but these are not numerous enough to overthrow the general rule, and many of them are to be explained by realizing that what the Celtic population wanted was not height as such but naturally cultivable soil, which can often be found on a patch of gravel in low country beside a river. The Saxons, on the other hand, though their earliest settlements are very often beside rivers,[8] did not insist on a river-bank. What differentiates them so

[7] *Air Survey and Archaeology*, 1928, second edition.

[8] cf. Leeds, *Archaeology of the Anglo-Saxon Settlements*, map on p. 19.

sharply from the Roman and pre-Roman inhabitants is the fact that they were willing to settle in places where capital had to be sunk in clearing woodland.

The distribution of the Romano-British population is therefore a prehistoric type of distribution, just as its total density is a primitive type of density. From this fact, various inferences may be drawn.

First and foremost, the Romans did not come to Britain, as a modern European traveller goes to a less civilized country, with an eye to the possibility of great improvements in agriculture. They did not say ' this country might be made far more productive by using capital to reclaim forest and marsh-land '. On the contrary, they accepted without question the fundamental principle of native agriculture—the principle of avoiding capital expenditure by scratching the most easily accessible soils and neglecting all others. They may have introduced minor improvements ; it is easy to imagine that they must have done so, when one considers the Italian appearance of a great Romano-British villa : but even if they did—and definite evidence even of minor improvements is wholly lacking—they left the main principles of British agriculture unaltered. This is, perhaps, less surprising when we reflect that in many other technical matters, for instance in metallurgy, the Romans do not appear to have taught the Celts anything new.

Secondly, the Romans do not seem to have turned their minds to increasing the productivity of the country at any time after their first arrival, as they might have done had they been faced with a rising population to feed or attempted to increase production so as to meet increasing taxation. In nearly four centuries, they did not ever begin systematically to clear and cultivate soils of a new type. They were content not only to accept the primitive agriculture of the Britons at first, but to leave it in its essentially primitive condition throughout the period.

Thirdly, it is important to recognize that the naturally cultivable soils in Britain are not the best.[9] They are on the whole decidedly

[9] The following observations are not applied to Britain as a whole, but to the upper Thames basin and the region adjacent to it on the north and north-east. But they hold good of most of the more densely-inhabited Romano-British districts. ' On the clays, *i.e.* in the lowland, deep and particularly fertile soils occur, but are usually heavy to work and hard to drain ; the lighter soils of the uplands, usually sandy or calcareous, are lighter, drier, and easier to work, if less productive and shallower. It was on these soils that the earliest efforts towards tillage seem to have been made '. (Beckit, in *Great Britain, cit.*, p. 137).

inferior in quality to those which have been brought into cultivation by clearing and draining. Consequently the profits of agriculture in prehistoric Britain were relatively low, and the necessary outlay of labour relatively high. The result was a condition of poverty which Roman rule did nothing to alleviate ; for it could be alleviated only by sinking capital in the cultivation of better soils. The agricultural wealth of the country per head of the population was not increased by the Roman conquest, as it was by the Saxon settlement, which tapped new and richer sources of wealth. This means, in terms of density, that Anglo-Saxon England would support a larger population than Roman Britain ; and, once the idea of reclaiming uncultivated land was established, this population would rise. Hence we are justified in thinking that the steady increase of population found in the Middle Ages must have begun in the Anglo-Saxon period ; and this is an additional reason for believing that our estimate of the Romano-British population at half a million is fairly correct, because that estimate, taken together with such an increase, would tally with the estimate for 1066.

It would be of great value if we could estimate the population of Britain just before the Roman conquest. Unfortunately, in the present state of our knowledge, this is not possible ; or rather, no estimate that can be made has a small enough margin of error to be of use to us. But it may be worth while to discuss the matter briefly in the only way that seems promising—by asking whether the Roman conquest is likely to have increased or diminished the population.

The events of the conquest, and in particular the punishment of Boudicca's Icenian rebels, the destruction of the Ordovices, and other incidents of the same kind, may have led to the depopulation of certain districts. Certainly the Icenian territory is remarkably poor in remains of the Roman period. But on the whole, events of this kind are likely to have had a merely transitory effect ; populations as a rule recover quickly from wars and massacres, and the temptation is always to overestimate their importance.

On the other hand, the *pax Romana* may have stimulated agriculture even if it did not appreciably improve its methods ; villages may have become larger and more numerous, and the cultivated area may have increased even though the type of land selected for cultivation remained in general unaltered. But here again the argument depends on the depopulating effect of warfare—in this case inter-tribal warfare in the pre-Roman period—and once more we must beware of overestimating this effect.

Whatever their respective weight, however, this at least is clear, that the two arguments just stated tend to counterbalance one another. Small increases in certain districts may well have come about, more or less balanced by small losses in others. One thing is quite certain: that no really important change in the population can be postulated unless it can be shown that there was an equally important change in the production of food; and on the whole the evidence is against any such change having taken place. Consequently we have no right to assert that the population of Britain just before the conquest differed very much from its population under Roman rule.

In the present state of our knowledge, therefore, it is safest to assume that the distribution of the rural population in Roman Britain was a prehistoric distribution not only *qualitatively* (with respect to the kind of soils in cultivation) but also *quantitatively* (with respect to the area of these soils actually exploited). This is the assumption for which there is the best *prima facie* case. Before it can be either exploded or raised to the level of demonstrated fact, a great deal of excavation must be carried out on the sites of villas and villages, with the express purpose of ascertaining their history in the early Roman period and before that period began.

'The most potent single factor in the Romanization [of the west]', wrote Haverfield, 'was the town. Italian civilization was based on city life; it was natural that the Empire should diffuse that life, especially in the provinces of western and central Europe which had few towns or none before they came under Roman rule'.[10] It has often been pointed out that the Roman towns in Britain, even when—as is rarely the case—they stand on the sites of pre-Roman towns, are essentially Roman creations, and in most cases probably owe their origin to a movement that was going swiftly forward in the late first century and is recorded to have been under the special patronage of Agricola.[11] The rapidity and momentum of this development, however, are far more impressively visible now that Dr Wheeler has shown the early date of the Roman walls of London.[12] They were built 'within half a century of the Boudiccan revolt', and enclosed an area of 330 acres, much of it at the time unbuilt-on, revealing in an unmistakable way the expectation, perhaps never made good, of future growth. Similarly,

[10] *Romanization of Roman Britain*, ed. 4, 1923, pp. 14–15.

[11] Tac. *Agricola*, xxi.

[12] *Roman London* (*Royal Commission on Historical Monuments*), 1928, pp. 35, 74.

at Wroxeter we have evidence of grandiose town-planning in the late first and early second century: a magnificent bath-building, projected and commenced in the Flavian period, but never finished, and on its site the great forum which was dedicated to Hadrian in the year 130.[12A] On the whole, evidence from other town-sites agrees with this and suggests that the late first and early second century was the age of town-building in Britain.

Now the building of a score or so of towns during this period was primarily, no doubt, a political move. A few of these towns, notably London, were of economic rather than political importance ; a few were colonies of time-expired soldiers ; but most were to be centres from which Romanized tribal authorities should govern their tribal districts. What were these towns to live on ? There is no evidence that any of them developed considerable industries ; and even if they had, their industries would have required markets, and would find these markets primarily in the neighbouring country-side, in which case the country would have to increase its production to pay the town for its goods. In any case, therefore, the creation of these towns required a counterpoise, in the shape of an increased productivity in the country. We have seen that, *prima facie*, evidence for such increase is lacking. The Britons were encouraged or compelled to build towns ; the money to build them and the men to inhabit them came from the country ; and it is probable that, instead of the country's becoming richer in order to support the towns, it became poorer because the towns were built. Even Tacitus admits that the town-building movement encountered resistance and had to be promoted by every means short of actual compulsion ;[13] it may be that this reluctance was due to something better than mere stupidity.

If, as I have suggested, the town-building movement was economically unsound because not based on increased agricultural production, evidence of this ought to be discoverable in the towns themselves by excavation. The only considerable excavations carried out by modern methods in a typical Romano-British town are those of 1912–14 and 1924–1927 at Wroxeter ; and here the required evidence was actually found. The forum—the centre of the town's economic and political life, the symbol of its townhood—underwent ' a second and final destruction . . . about A.D. 300. The evidence for a still later occupation

[12A] *J.R.S.* XIV, 226–8 ; XV, 228–9 ; XVI, 224–5 ; XVII, 197–199.

[13] *Loc. cit.* : . . . *laudando promptos, castigando segnis ; ita honoris aemulatio pro necessitate erat.*

was slight and partial, but it was clear that traffic had continued along the main road and cross street long after the building had become a ruin. Thus confirmation seems to be given to the conclusion arrived at in 1912–14 that Viroconium more likely ended in gradual decay than in destruction by violence at a flourishing period' (*J.R.S.* XIV, 227).

Here we have at any rate one example in which a town sank into a state far inferior to its original condition, long before the Roman occupation ceased. It is for future excavators to decide whether this is the rule or the exception ; but for the present we ought to assume that what is known to have happened at Wroxeter may have happened elsewhere : namely, that the hopes of the first and early second centuries were not fulfilled, and that in the third and fourth centuries the towns of Britain were partly in ruins and were inhabited by a dwindling and impoverished population. There is, however, no doubt that they continued to be centres of local government, and that, however shrunken their resources, they were still doing their best to fulfil their political functions even in the fifth century.[14]

Thus the evidence of excavation, slight though it is, goes to support the view put forward above, that the towns of Roman Britain had no real basis in the economic system of the country. The country was too thinly populated either to need, or to support, urban life. What happened, according to the above reading of the evidence, was that the Romans found a country with a fairly flourishing civilization and a population of half a million, practising agriculture in a way which supported it well enough in a strictly rural manner. Upon this foundation the Romans superimposed a new urban system. But they did not materially strengthen or widen the foundation. In all essentials they left the methods or technique of agriculture exactly where they were. Thus Roman Britain, regarded as an economic organism, consisted of two strata : an urban civilization on the Graeco-Roman pattern resting unconformably upon a prehistoric, Celtic, rural foundation. The capital poured into the creation of the superstructure was therefore more or less completely wasted. It impoverished the country instead of enriching it. The foundation was unable to carry the superstructure, and this crumbled away, leaving the original Celtic rural civilization in essentials very much as it had been at the start.

[14] These were the *civitates* to which in 410 Honorius sent word that they must provide for their own defence, *i.e.* take over the work of raising and employing military forces. In 429 St. Germanus found them doing their best (which was not very good) to carry out these orders, and lent them a hand (Bede, I, xvii–xx).

Thus came about what Haverfield called ' The Celtic revival ' with which the history of Roman Britain closes, or, as Dr Wheeler has lately christened it, ' The Un-Romanization of Roman Britain '. But in order to visualize this event we must turn back to the country-side.

Whether or no the ' villa-system ', the system of large estates, was due to Roman influence, it was certainly encouraged by Roman influence. We do not yet know when it began to play an important part in the life of the country ; that is because we have not excavated enough villa-sites properly, and our knowledge of their history depends for the most part on stray finds of coins picked up on their sites. It follows that we know most about the latest phase in that history, whose relics lie highest in the soil and whose coins are most numerous. This evidence enables us to say that in the fourth century, when the towns were apparently shrinking into poverty and decay, the villas were thriving. That, again, is confirmed by the analogy of Gaul, where as time went on the large land-owners tended to become richer and richer. This process was hastened by the system of taxation in the later Empire, which, in defiance of sound policy, bore most lightly on the largest proprietors.

Throughout the fourth century, the owners of large villas in Britain must have been gradually concentrating into their own hands an ever-increasing proportion of the country's wealth. The peasants and villagers were sinking by degrees into the state of serfs, and losing at once their economic independence and their legal freedom. The towns, as we have seen, had failed to make good their claim to leadership. By the late fourth century, the large landowners enjoyed a monopoly of wealth, freedom, influence and power.

This fact decided the fate of Roman Britain. In 367, Britain was overrun by a confederation of barbarian tribes—Picts, Scots, Attacotti, Franks, Saxons—which destroyed its military forces and ravaged the length and breadth of the country. Theodosius, coming to rescue the country from these invaders, found bands of them looting in Kent, and London in a state of siege.[15] Now an invasion of this kind—an irruption of barbarian tribes intent on plunder—is comparatively harmless to a country whose wealth is concentrated in walled towns, because towns of this kind can defend themselves against plundering

[15] Ammianus Marcellinus, xxvii, 8. I may add that I have called attention to the crucial importance of this invasion before (ANTIQUITY, I, 117–19), but only *en passant* in a review of Dill's *Roman Society in Gaul in the Merovingian Age ;* so that there is perhaps no harm in going into it here again and a little more fully.

bands. It is comparatively harmless to a country of peasants and villagers because their wealth consists chiefly of the soil itself, and of produce too bulky, in proportion to its value, to be desirable as loot. But it is fatal to a country of large landowners dwelling in unfortified houses. The richer a landowner is, the more certainly his home becomes a mark for the invader ; and a mere handful of Picts or Scots would suffice to burn and loot a Roman villa and cut the throats of its owner and his family.

That this was what happened in 367 is clear from the evidence of coins. The coins found in Romano-British towns go down, as a rule, to Arcadius and Honorius ; they go down to the end of the fourth century, when Britain was beginning to lose touch with the mints on the continent. But the coins ordinarily found in Romano-British villas only go down, at furthest, to Valentinian I and Valens ; that is to say, they go down to the date of the great invasion, and there they stop. It is impossible to compare a list of the coin-finds in villas with a list of those in towns, without realizing that in the reign of Valentinian I and Valens something happened which brought the history of the Roman-British villa-system to an end. And the exceptions to this rule are significant. In the extreme south-east and the extreme south-west—in Kent and in Somerset—there are several villas whose coins go on to Arcadius and Honorius. Between these two extremes, even as far south as Hampshire, there are practically no villas of any size which seem to have escaped. · The inference is plain. Ammianus is telling us the truth when he says that Theodosius arrived to find the invaders already in Kent. He came in time to save a number of villas in that district, and his counter-attack fell on the invaders in time to save a number in Somerset also. But except in these two outlying regions the villa-system had vanished.[16]

What is more, the coins tell us that this catastrophe was never repaired. Roman Britain, by 367, had all her eggs in one basket ; that basket was the villa of the large landowner ; and that fact is what made the disaster irreparable. No subsequent reorganization of the defences of Britain could be more than a half-hearted affair, because there was little left that was really worth defending.

[16] With regard to coin-finds in villas, the reader can consult the materials collected in the *Victoria County Histories*, those of Hampshire and Somerset being especially full and illuminating. It may be added that the recent attack on the credibility of numismatic evidence in cases like this, based on a theory of so-called ' coin-drift ', by Mr Edward Foord (*The Last Age of Roman Britain*, p. 27), has been completely answered more than once : the latest and most conclusive answer being that of Mr F. S. Salisbury, *Antiquaries Journal*, VII, 268–81.

The epilogue, so far as it concerns the thesis of this article, can be disposed of in a few words. The great landowners had disappeared ; the towns, having lost them, were even poorer and weaker than before ; but the peasant population remained, standing very much where it had always stood, having learnt little and forgotten little in nearly four centuries. It was still living, as it had always lived, on the naturally cultivable soils, making a bare livelihood by tilling them. It still possessed the shattered remnants of its old tribal organization, and, with the tenacity of the peasant,[17] it set to work to make the best of a bad job. And now come Saxons, ready to settle and lend a hand at keeping off Picts and Scots. For a long time, up and down the Empire, barbarians have been filtering in and settling on land that nobody wanted. In Gaul, it has been going on ever since the third century. These settlers are not enemies ; they are officially made welcome and accepted as allies. If that is true of Gaul, in the third century and later, it is equally true of Britain in the fifth. Hengist and Horsa are not the leaders of a conquering host ; they come with a handful of men in ' three keels ', are welcomed, are given land, and settle down as friends and neighbours.[18] No doubt such settlement, in a country devoid of strong government and military force, will lead to friction of various kinds ; but the point to be borne in mind is that there was no dispossession, partly because the total British population was extremely small—too small to fill the country—partly because the Saxons wanted a different kind of land. They did not deprive the Britons of their villages and fields. They chose sites of their own, sites where no Britain would live ; they settled in the gaps, hitherto thought uncultivable and uninhabitable, between the sparsely-scattered habitations of the Britons, and made new villages and fields of their own. And it is at least conceivable that the ultimate abandonment of the upland British villages may have been due to the discovery that the Saxons had the best of the bargain. Their newly-cleared lands were richer and

[17] St. Patrick's *Confessions* show that. In spite of Irish raids and kidnappings, the life of the country-side goes steadily on.

[18] Our authorities are explicit on this point. The Romano-Britons were, obviously, adopting on their own account the policy of bringing in friendly barbarians which had long been practised in other parts of the Empire, and is amply explained by the density and distribution of the population. I would add that the destructive wars of aggression waged by the Saxons against the Britons, as recorded by Gildas, belong to a much later period. The conflicts belonging to the period of settlement (the middle of the fifth century), so far as we can recover their history, seem to have been mere cases of local friction between the old inhabitants and the new settlers.

more fertile than the thin and barren soil of the uplands; why not leave the uplands and throw in one's lot with the men of the valley? [19]

There is a moral, as well as an epilogue. Some people are never tired of holding up the decline and fall of the Roman Empire as a warning to ourselves. Ancient Rome, we are told, fell by a process much resembling the process of change that we can see now going forward in our own civilization. No doubt, resemblances may be found. A sufficiently determined seeker can always find them. But there are also differences, and the differences are fatal to the parallel. The Roman Empire had an exceedingly small population; so small, that it could not produce the wealth necessary for the support of its political system. Bound up with the smallness of its population was its inability to invent improved methods of production. Rome had no industrial revolution; nor had she the centuries of industrial and agricultural advance which gave the industrial revolution its preparation and its agrarian counterpart. The fall of the Western Empire, or rather its change into a congeries of barbarian states, depended on the fact that it neither possessed enough men to cultivate its own soil, nor invented methods of cultivating its soil so successful as to stimulate an increase of population. Hence, on the one hand, it lacked the material wealth to carry out its own political ideas; and, on the other hand, it was compelled to permit, indeed to encourage, immigration into its own territories.

That is not, and is not intended to be, a theory of the 'causes' that destroyed the Roman Empire. There are plenty of such theories on the market already, and they belong to a type of historical thinking whose rules are more honoured in the breach than the observance. It is a statement of certain facts which are forgotten, or perhaps not known, by the people who draw parallels between the present age, with its applied science, its intense agricultural and industrial activity, its dense and rising populations, its extraordinary increases of national wealth, and the later Roman Empire, with its total lack of progressive technology, its sparse and stationary or declining population, and its complete failure to expand its national wealth *pari passu* with the increasing complication of its governmental machine.

[19] In Gaul, fifth-century writers tell us that the Romano-Gaulish peasants were going over to the 'barbarians' of their own accord, because they found they were better off than under the thumb of the Roman tax-collector and large landowner (Salvian, book v). Of course conditions were different in Britain, but not so different as to make a spontaneous movement of this kind unthinkable.

APPENDIX: THE POPULATION OF ROMAN BRITAIN

(a) *Towns.*—A town of 100,000 inhabitants was a rarity in the Roman Empire ; there were a few of these in the East ; Alexandria and Antioch were well over that figure. In the west, Rome itself may have had half a million inhabitants. It will be seen from these figures (Stein, *Geschichte d. spätröm. Reiches*, 1, 3) that a population of 100,000 is out of the question for Roman London. The statement that Boudicca massacred 70,000 people in Colchester, Verulam and London suggests that this figure may be an estimate of the total population of these towns. I therefore suggest 25,000 as a rough guess for the population of London.

(b) The other towns were all much smaller. There were four colonies and thirteen tribal capitals, so far as we know ; three or four other towns like Richborough and Bath may be added to this class, making about 20 whose average population cannot well have exceeded 5,000. This class shades off into the next :—

(c) Towns of a still smaller type. They occur mostly at road-junctions or in the form of posting-stations. There were probably over 50 of them—75 would be an outside number—and an average of 1,000 inhabitants is a generous estimate, considering that many of the posting-stations must have been far smaller.

(d) *Villages.*—About 700 are marked on the new Ordnance Map. In the most densely inhabited areas it is probable that comparatively few have been omitted ; elsewhere there are certainly many omissions, because all ' British villages ' are purposely left out in which no evidence of Roman date has been found. But it is improbable that the omissions are as numerous as the entries ; and to estimate the total number at 1,500 would probably be to exceed the true total. They varied very much in size, but it is difficult to suppose that the average was over 100 inhabitants, considering how very small many of them are.

(e) *Villas.*—The number of villas marked on the map is getting on for 500. It is improbable that any very large number awaits discovery, for ' Roman Villas ' have been objects of general interest in this country for 200 years, and discoveries have therefore been recorded with a regularity unexampled in other branches of archaeology. However, to be well on the safe side, we will assume 1,000 villas, and suppose their average population to be 50, which greatly exceeds the accommodation of all the smaller villas.

(f) *The Army*.—This may be estimated at 40,000, and when dependants have been included the number may perhaps be placed at 100,000. It will be remembered that the military colonies have already been allowed for.

This gives the following result :—

(a) London – – –	25,000
(b) Large towns – – –	100,000
(c) Small towns – – –	75,000
(d) Villages – – –	150,000
(e) Villas – – – –	50,000
(f) Army and dependants –	100,000
	500,000

It will be observed that this is something like a maximum estimate : (b) (c) (d) and (e) are probably all too high, and it is possible that every item is too high. The total may easily be in excess of the truth, but cannot very well be much below it.

NOTE.—In thinking over the subject of this paper—whose chief theses, I believe, have not hitherto been stated in print at all—I have had the advantage of discussing various points with Mr O. G. S. Crawford, Dr R. E. M. Wheeler, and Professor A. M. Carr-Saunders. I owe to them not only a number of fertile suggestions, but, what is more important, the general encouragement to pursue a line of inquiry which is rather remote from ordinary topics.

The Giant of Cerne and other Hill-figures

by O. G. S. Crawford

FEW monuments are more interesting to the general observer than the hill-figures carved on the chalk downs of Southern England. The publication of Sir Flinders Petrie's monograph* has led us to revisit one of those he describes ; and the resulting observations are here set down for what they are worth.

Sir Flinders Petrie has performed a useful task in publishing these plans between two covers. The best known hill-figures are the White Horse on the Berkshire Downs, below Uffington castle, which can be seen from the train between Didcot and Swindon ; the Long Man of Wilmington on the Sussex Downs, also visible from the train (between Lewes and Hastings) ; and the Cerne Giant, Dorset. To these may be added, as probably ancient, the two Buckinghamshire crosses carved on the escarpment of the Chilterns. The remainder are all, with two possible exceptions, modern. Those with claims to antiquity are the Warwickshire Red Horse and the two club-holding giants which formerly stood on Plymouth Hoe. Sir Flinders's list, however, is not quite complete. He has overlooked the Shotover Giant recorded by Aubrey in these words : ' On Shotover Hill [near Oxford] was heretofore (not long before the Civil Wars, in the memory of man) the effigies of a Giant cut in the earth, as the White Horse by Ashbury Park '. (Monumenta Britannica, unpublished MS. in the Bodleian, part 2, fol. 242b). Minor and quite unimportant omissions are the modern White Horse on Ham Hill, Wilts, which was above Inkpen, Berks, and has now vanished (*Wilts. Arch. Mag.* XLII, 73) and that on the southern rampart of Woolbury Camp, above Stockbridge, Hants. (*Wessex from the Air*, 1928, p. 155 ; published after the monograph). There is also no mention of the numerous regimental badges and emblems carved on the downs during the war (compare *Wessex*, plate VII

* *The Hill-figures of England*, by Sir Flinders Petrie, F.R.S., F.B.A. Published by the Royal Anthropological Institute [Occasional Papers, no. 7]. Pp. 16 and 9 plates of plans. London, 1926. (Price not stated, but ascertained to be 5*s*.).

and p. 74; and the list in G. Lansdown's *White Horses of Wiltshire: war badges on the Wiltshire Downs;* a pamphlet printed in 1925).

It is comparatively easy to rule out certain obviously modern figures; but when we attempt to assign an age to the ancient ones we at once encounter difficulties. We know that the Berkshire White Horse was in existence in 1084; the rest is inference. Sir Flinders Petrie attempts to date the Cerne Giant by an ingenious argument, but it will not hold. Briefly it is as follows:—On Weam Common Hill, opposite the Giant Hill, on the west side of the Cerne valley, are a number of earthen banks. Two of these run parallel along the top of the ridge in an east-and-west direction. For a part of their course these banks point directly at the Giant; and the author concludes that 'the Giant was used as a fore-sight in laying out the road' (p. 11). We do not admit the validity of the conclusion, but, assuming for the moment that it is valid, it would follow of course that the Giant was contemporary with or older than the banks. Everything therefore hinges on the age of these banks. What evidence does the author produce? 'Further west are [other] large banks running across the hill at 700 feet, and two of these have deep pits, or shafts, in the line of the bank. As no one would lay out a bank thus, it appears that these pits were for flint mines, sunk jointly by two adjoining field-holders. This gives a probable age for this group of banks, when flint-work was still so important that pits were sunk to get a good supply'. It is an assumption that the banks aligned to the Giant are of the same age as those intercepted by the pits; but for the moment we will allow this also to pass. What of the pits? Nothing could be less like the shafts of flint-mines; the eastern pit is a shallow depression of irregular shape and plainly of no great age; the western is an old pond, not more than about 3 feet deep and (though dry at the time it was seen [1 June], during the dry spell of 1929) obviously still used as such! Thus the whole of the author's main argument for the age of the Giant collapses, even if we allow him his two assumptions. Be it noted that this is not dependent upon what we imagine the shaft of a flint-mine *should* look like, for we actually know of many hundreds of them, their character proven by excavation. They never occur in isolation but only in groups; and those wells or shafts dug in the chalk and often associated with Celtic fields (often, too, dug in the bank between two fields) were dug not for flint but for chalk, to marl the fields.* But these two pits

* See *Air Survey and Archaeology*, 2nd edition, 1928, p. 6.

are *not* wells or shafts ; they are shallow excavations such as occur in thousands all over the Wessex downs and they could never be mistaken for anything else by one familiar with them.

Whether the parallel banks were *intentionally* directed towards the Giant for a small portion of their (admittedly changing) course must remain a matter of opinion ; personally we doubt it, because they follow the top of the ridge which itself points here towards the Giant. But, since the *intentional* alignment of the banks is not self-evident and cannot be proved, the whole argument becomes irrelevant. The total length of the ' aligned ' portion is about 800 feet ; on his plan the author continues one bank (the northern) for a distance of more than 500 feet westwards as a single bank, but we could find no trace of this except a short length at the extreme western end.

The implied suggestion that the group of banks forms a contemporary unit is an unproven assumption. We think it most unlikely. Without an air-photograph, it is difficult to disentangle all the banks on Weam Common Hill ; but there is abundant evidence of Celtic cultivation, and also of a series of much slighter banks which look later. To this latter class we are inclined to assign the banks involved above. Such frequently occur on the hills round Cerne, as they always do in the vicinity of monastic establishments.

We have devoted much space to a single line of reasoning because much is made to depend upon it. If correct it could prove the Cerne Giant to be Neolithic or of the Bronze Age. Sir Flinders Petrie's other arguments are less cogent, and seem to us to be inconclusive ; but his conclusions with regard to age may well be near the truth, however fantastic his reasons. The question of age is one that can hardly be answered of deliberate intent ; comparative arguments are helpful but still inconclusive. The evidence of associated remains, again, is weakened by the presence close by of remains of every period, from the presumably Bronze Age barrows on the hill above to the certainly medieval abbey and town at its foot. The most promising line of enquiry would be to excavate the little earthwork immediately above the Giant : and even if the age of this were proven beyond doubt, it would still probably remain uncertain whether it were of the same age as the Giant. It seems to have been originally one of those small four-sided enclosures which are so common on the downs and which belong, for the most part, to the early Iron Age. At a later date a small inner bank has been thrown up (from *both* sides) following roughly the lines of the outer. In the middle is an irregular mound

(not very successfully plotted on Petrie's plate 4). It was here that the May-pole used to be set up ; and it was this earthwork doubtless that caused the hill to be called Trendle Hill. Possibly the inner bank was made in connexion with these festivities.

Our illustration (plate II) shows the Giant* with his club and a distinct suggestion of something held in his other hand ; the May-pole enclosure is immediately above. On the right are the foundations of Cerne abbey, with its huge enclosing rampart and three curious round mounds ; at the top right-hand corner is a white straight-sided patch suggesting some sort of building, though nothing can be seen on the ground ; the field is permanent pasture. On the left, at the foot of the hill, are some abandoned chalk-quarries, the grass-grown spoil-tips being quite plain. On the brow of the hill, just above the May-pole enclosure, may be seen what looks like a Celtic field, bounded by a plainly visible bank. It cannot have been cultivated for long, for there is no great accumulation of earth on the edges ; but the lower part, where the accumulation would have been greatest, has been destroyed by the chalk quarries. The other illustration (plate I) gives a good general view of the spur on which the Giant is carved. Beyond him, but not visible on this photograph, are many field-banks and mounds, all of prehistoric or Romano-British age. These are for the most part shown by Sir Flinders Petrie on his plan (plate 5) but he has overlooked the village itself, which lies about a quarter of a mile north of the Maypole enclosure and consists of hut-circles and hut-shelves.

The whole of the Cerne district abounds in prehistoric remains, nearly every down being covered with traces of Celtic cultivation ; while on the lower slopes of many of the hills, and of the main Cerne valley especially, are the abandoned terraces of medieval strip-cultivation. The Celtic fields on Smacam Down were planned by Sir Flinders Petrie at the same time as the Giant, but the plan (plate 9) is full of omissions and contains serious errors. The pit east of the long barrow is a large hut-circle standing in an irregular-shaped four-sided enclosure, with a ditch plainly visible on three of the four sides ; but there are no indications of a ditch given, and the fourth or western side is omitted altogether. Of the field-banks shown, one does not exist and several terminate prematurely. The pit near F is a small steep-sided affair, of

* The six-sided frame surrounding the Giant is of quite modern date. The Giant is now the property of the National Trust.

an entirely different character from the other and probably much later in date ; yet both are called ' pit ' with no attempt at differentiation.

We do not like the author's convention of showing everything by means of lines. Such symbolism is too rigid for the elastic forms to which it is applied. Some symbol for a ditch, differing from that used for the top of a bank, seems to us to be absolutely essential. The old-fashioned hachures may be unsatisfactory, but an efficient substitute has yet to be devised. Thick and thin lines (for bank and ditch respectively) have been used with success by several workers.

We do not propose to submit Sir Flinders Petrie's account of the White Horse to the same detailed criticism as the Cerne Giant, because in this case we have not been able to go over the ground again with his book in hand. Of the plan of the Horse itself we can only say that, like that of the Cerne Giant, it is a valuable achievement. But we differ from the Professor's interpretation of the surroundings. Some of the banks on the slopes of the coomb (called the Manger) at the foot of the hill, are undoubtedly caused by cultivation. *No* slope was too steep for cultivation under primitive conditions. We have seen and walked up a hill-side in Bosnia that was just as steep as the slopes of the Manger, and which was actually in cultivation at the time we climbed it. The southern slopes of Smacam Down, as the Professor must have seen when he was surveying it, are nearly as steep as those of the Manger, but are traversed obliquely by Celtic lynchets whose huge size testifies to prolonged cultivation. The author concludes that ' the purpose of such banks must be ceremonial rather than agricultural '. Why ' must ' ? Are there no other alternatives ?

It is usual to compare the White Horse with the horses on the British coins of the Iron Age. The resemblance, first noted by Sir John Evans, is not merely a general one (of shape and attitude) but extends to the details of head and jaws. We still think the comparison a just one, in spite of the author's disparagement. It is in agreement with the inference that the Horse is contemporary with the camp immediately above it, which belongs to an Iron Age type. Our own opinion, for what it is worth, is that the White Horse was the sign or tribal emblem of the people who built and lived in Uffington castle. The horse is common in the art-products of La Tène, and it is the same duck-billed animal ; it occurs on the Witham shield, for instance, and on the Marlborough and Aylesford buckets, all of them contemporary with the coins on the one hand and with a large number of hill-top camps on the other.

The Dragon Hill is a core of a natural hill trimmed into shape for defence, in medieval times. It is simply a castle-mound.

We have criticized Sir Flinders Petrie's little monograph—a by-product of his leisure—quite frankly, because we are jealous of the reputation of British field-archaeology. Sir Flinders Petrie was one of the pioneers himself, and he was studying and planning earthworks before General Pitt-Rivers did his most important work. We do not wish to end on a note of adverse criticism, or to leave an impression that this monograph is anything but a valuable contribution to the subject. After all it is the hill-figures, not the adjacent earthworks, which form the main subject of the book ; the plans here published represent the first comprehensive attempt at an accurate record of such, and they will be an indispensable basis for all future students.

New Light on an Old Problem

by Dorothy M. Liddell

SOMETIMES the Gods are kind, and so they seemed one morning during last season's excavations at Windmill Hill,[1] when some minor official of that department which dispenses new ideas through such simple media as overflowing baths and falling apples, superintended the finding of a large quantity of fragments of 'West Kennet' type pottery, thickly ornamented with a clearly defined design and in the same layer—for this site singularly unproductive—a small bird-bone.

As they lay drying in their trays after excavation, the similarity of form between the joint of the bone and the outline of the pattern suddenly became very apparent. Would they 'fit'?

They did fit, rather pleasantly.

Plasticene was obtained and the impression of the bone taken; surely it would reproduce this very favourite West Kennet design?

It did not; but the result was sufficiently interesting to invite a series of experiments, the outcome of which seems strongly to indicate that the intricate articular surfaces of the bones of small birds, and possibly mammals, were very frequently the tools used for producing the familiar 'stamped impressions' on Neolithic pottery.

The idea, once admitted, attracts by its practical simplicity.

The recognition of some sort of standard tool has long been necessary to account for the recurrence of types of ornament in places as widely separated as Devizes and Wallingford, Edinburgh and Windmill Hill; ornaments which, though perhaps varying slightly in size, are more or less identical in outline.

The haphazard traditional 'irregular piece of stick' could not credibly have achieved this, neither could broken twigs, unless carefully pared, produce the smoothness of hollow and curve which so many of these patterns display.

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[1] Near Avebury, Wilts; excavation of this site has been carried on annually since 1925.

Evidence is not lacking to show the use of sinews, twisted or knotted, in the making of cord patterns, which are indeed easily distinguishable from the cord impressions made with twisted threads or plaited grasses. Unlikely that the longer and stronger sinews which might be put to sterner uses would be spared for such frivolities, the little strings from the legs of small birds or animals would be useful for this domestic craft and the bone, from which such sinews had been removed, actually presents a much more usable tool for the decoration of unbaked clay than do the sinews themselves.

There can have been no dearth of these bones amongst the débris of finished meals ; and if, as seems probable, the making of this coarse, primitive, pottery came within the woman's sphere (and, if the remains of feasts uncovered at Windmill Hill, with their invariable fragments of pottery amongst the bones, flints and heating-stones, are any criterion of habitual extravagance with the household crockery, she must have spent many an afternoon renewing the domestic ware) how simple to stretch out a hand for a little bone, probably already nicely picked and cleaned, and make with it one or more of the almost infinite number of patterns which these as tools are capable of producing.

The variety of designs obtainable from any one bone must be essayed to be believed.

Plate I will give a slight idea, showing as it does over one hundred different patterns produced by eight small bones, the whole series being made with the leg-bones and larger wing-bones of a black-bird (*Merula merula*), except three which are made by the articular processes and the tip of the lower bill.

It will be seen that the first thirty rows of impressions are produced by one tibia alone ; the first nine with the distal and the remainder with the proximal end.

All the impressions in this illustration (with the exception of the round ones resembling volutes, which are made by pressing the distal end of the bone squarely into the plasticene and revolving it a half turn between the fingers) are obtained by a straightforward downward pressure of the bone held vertically between the thumb and fingers, or by holding it something after the manner of a pencil and applying one or other edge of the articular surface at a time.

All of these are made with the right hand and by the same person, and in no case (save the one noted above), has any artifice such as dragging, twisting or drawing with the bone been resorted to. By all of these manipulations and by others such as slightly pressing to the

left, or pulling to the right, or sloping the design so that the upper end of each impression overlaps the lower end of the next, still other designs can be formed ; also different people handling the same bone or using the left hand instead of the right, will produce further variations.

Multiply these by the variety of birds obtainable and the result is startling.

The bigger the bird the greater the number of designs possible, the longer shaft of the bone permitting of more acute angles being tried without the fingers interfering with the surface of the clay or plasticene.

Plate II shows a very small selection of the more elaborate designs made with pigeon (*Columba palumbus*) bones. The first six rows are made in pairs constituting only three lines of impressions. The bones used are : (1) humerus, (2) radius, (3) ulna, (4) tibia, (5) femur, (6) tarso-metatarsus.

In very few cases is it yet claimed that the exact identity of any species of bird used is established, only a limited number of the more common ones having so far been tested. Pliny vouchsafes the popularity of the sheldrake as a dish amongst the ancient Britons, and in the same chapter describes the bustard and the capercailzie.[2] Cranes and large flocks of quail were also very common, as were beavers,[3] but all these are less easily obtained today for experimental purposes.

The question as to whether one of the larger bones of a small bird, or a similarly shaped small bone of a large bird is responsible for a given design is also occasionally debatable.

The small mammals, rat, stoat, weasel, squirrel, hedgehog, etc. which have been tried have not, on the whole, yielded as satisfactory results as have the birds ; and it may be questioned whether these were used at all and whether, in the few cases which follow in which animal bones have been employed, an equally convincing result may not presently be obtained with bird-bones.

Whether this choice was backed by superstition, must remain a matter of merest conjecture; but bird-life and bird-ways have from earliest times been invested with magical attributes and made the vehicle of omens and portents some of which, in a mercifully attenuated form, persist to the present day.

Birds were evidently in favour at the dawn of history in these Islands, for they figure in the oldest stone carvings. Herodian[4]

[2] Pliny, *Hist. Nat.* x, 29.
[3] Giraldus Cambrensis. *Itin. Camb.* II, c.3.
[4] Herodian, III. 14.

describes the ancient Picts as tattooed with the strange shapes of beasts and birds ; and the remains of small birds, chiefly the legs, occur constantly in the Dolmen burials of Brittany, while a goose was found in a long barrow at Stonehenge.[5]

In comparing the accompanying photographs, which are all actual size, allowances must be made for disparities caused by the difference in texture of the original pottery on which, by reason of its coarseness, the sharpness of the detail is blurred or does not take effect, and the plasticene used for these experiments which shows every sinew mark or convolution of the bone with vivid clearness.

The first six examples shown are from the National Museum of Antiquities in Edinburgh—the museum reference numbers being quoted in brackets.

Fig. 1 shows the photograph of a cast of part of the design on a very beautiful flat-bottomed urn from Duncra Hill, Pencaitland (EE 81), and fig. 1a a similar pattern produced with the proximal end of the humerus of a rook (*Corvus frugilegus*).

Fig. 2 (EE 93) is a cast of a portion of the design which is dotted irregularly over the entire surface of an urn from a cist at Ardachy near Burnessan Mill. 2a is a reproduction of the design made with the proximal end of the humerus of a weasel (*Putorius nivalis*). Some other bones produce a cloven circular impression very like this, notably the femur of a pigeon and the ulna of a little owl, but there is too much detail rendered by both of these.

Fig. 3 is an actual photograph of a portion of a very perfect little urn from a short cist at Bridgeness, Bo'ness (EE 113)[6] and 3a shows a reproduction with the proximal end of the femur of a magpie (*Pica rustica*). The surrounding triple rows of 'maggot' pattern which can be produced with short 'ticks' by the same, or almost any other, bone are obviously not so made in this case, being a recurring pattern which is repeated every 10 to 12 strokes ; no effort has therefore been made to reproduce them accurately.

With regard to these semicircular impressions it will possibly be claimed that they could equally well be made with a stick. They *might* be—but it must be carefully noted that the circumference of each impression is not circular, but finely arched, and into these arches this particular bone fits as if the clay had been moulded round it. If

[5] Thurnam, 'Ancient British Barrows', *Archaeologia*, XLII, 183.
[6] *Proc. Soc. Ant. Scot.* (1923–4) LVIII, 290, fig. 6.

this is coincidence, it is but one more link in a chain of coincidence which is steadily becoming too heavy for Chance to bear.

Fig. 4 (EQ 216). The original, which is from Mill of Marcus, consists of two very beautiful fragments of an urn which had a deeply fluted band (rather like the segments of a pumpkin) round the shoulder and deep chevronwise incisions round the neck. The fragments show four variations of ornament, all of which can be produced with the same bone. Two are shown here, both of which are made without altering one's hold of the bone. They are made with the proximal end of the humerus of a rook. This, though right in size, was not the actual bone employed originally, the 'neck' of the design it produces being a little long and the angle of the ' head ' a trifle too acute. A starling (*Sturnus vulgaris*) bone gives the correct outline though, of course, much too small. The happy mean should not be hard to find. The little ' break ' half way down the back of each impression should be noted in both photographs.

Fig. 5 (Hedderwick 1) presents a problem which is still baffling, being entirely reproduceable by bone except for the small dimples or ' eyes ' which occur at the bottom of each of the smaller or ' double-dot ' impressions, and which have led elsewhere to the conclusion that they were made with reeds. If so—what made the larger ones ? In favour of the bone is the fact that both the 'double-dot ' and the larger ' hour-glass ' patterns can be reproduced not only by the same bone (in this case the tibia of a magpie), but by the same end of it, using the anterior part of the distal end for the one and, with a half revolution in the fingers, the posterior surface for the other.

These 'eyes' would be caused by the tiniest depression in the surface of the bone and can easily be made singly by other bones, e.g. femur of partridge (*Perdix cinerea*) or magpie. The identification of an animal with this peculiarity may present no problem to a biologist, but nothing of the kind has so far found its way into the small collection of common local fauna from which these experiments have been made.

Fig. 6 (EE 58) from Shisken, Arran, is amusing. This solitary little block of five vertical rows of four tiny horizontal lines each occurs, quite haphazard, beside the lug of an urn entirely decorated with incised chevrons and with a geometrical pattern of stiff triangles running round its shoulder. The spacing of the lines is exactly that of the tarso-metatarsals of a bird (the details of which vary enormously with the different species), and those of a blackbird (6a), are precisely the right size (see also column 3, pl. 1).

Fig. 7 is a fragment (no. 28) from the West Kennet long barrow collection in Devizes museum, as are the following seven to no. 14 inclusive. The numbers in brackets are the key references in Mrs Cunnington's publication upon the subject.[7]

This impression shows again the tarso-metatarsal spacing on a larger scale. This time the little 'thumb' which is very slightly attached is left adhering to the bone, giving an extra stroke to the design. The reproduction is made with the bone of a carrion crow (*Corvus corone*).

Fig. 8. In this fragment (no. 7) the impression is very shallow; in the plasticene, 8a, the impressions, which are made with the claw of a fox (*Vulpes alopex*), are too deep, showing some unnecessary detail, but the essential lines of the outline are the same.

Fig 8b shows another version produced by the proximal end of the digit of a goose. It is not actually so accurate, but is another instance of very similar designs being possible from bird and beast.

Fig. 9 is interesting, being as exact a replica of the two impressions on the tiny original fragment as could possibly be contrived, the bone fitting into the original as a key into its own lock. It is formed by the proximal end of the ulna of a rook (each pressure producing simultaneously the little triangle and the dot below it), and is identical in size and shape, showing even the tiny cleft at the base of the upper portion of the design.

Fig. 10 is another case of 'perfect fit' and can be reproduced absolutely accurately with the proximal end of the tibia of a blackbird. Variations of this 'motif' will be seen in the top half of the second column in plate 1.

Fig. 11 is a small piece of rim (no. 13) with a raised band closely ornamented on the curved surface with a minute design which can be repeated with the proximal end of a femur of sparrow (*Passer domesticus*), sloping the impressions so that they overlap.

Fig. 12. The design consists of alternate rows of cloven 'goat's-foot' pattern and of semicircles with somewhat expanded extremities. These can both be reproduced with the digit of a goose using the distal end for the 'goat's foot' and the edge of the proximal end for the crescents.

Fig. 13. The fragment (no. 3) shows two rows of very blurred 'goat's foot'. Both can be made with the distal end of digit of goose.

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[7] M. E. Cunnington, *Pottery from the Long Barrow at West Kennet, Wilts.*

Fig. 14. The original impressions are very shallow and confused, having been made in very wet clay but can be copied with the distal end of tibia of jay (*Garrulus glandarius*).

Fig. 15 is of a pathetically unflattering cast of a small section of the decoration on the smaller of Mr. G. W. Smith's exquisite 'Mongewell' bowls. This shows the tibia ornament again, the crescents being produced by the exterior surface of the same (distal) end of the bone, a quarter turn in the fingers giving the necessary alteration of position.

In the copy 15a, the crescents fit exactly but there is a slight discrepancy in the other pattern, the space between the condyles being a trifle wide. In some other birds (e.g. the waterhen, *Gallinula chloropus*) the condyles are more oblique but the size incorrect. This identical impression appears again in conjunction with cord and finger decorations on one of the West Kennet fragments (no. 16).

The next three specimens are from Abingdon (now in the Ashmolean museum, Oxford) which appears to deal exclusively in miniature editions.

Fig. 16, for which the digit of a magpie has been employed, is another case of an absolutely perfect fit. The cast is taken from a very curious and beautiful broad thin lug which is actually luted on to the rim of the vessel. The ornament is continued on the body of the pot.

Fig. 17, reproduced with the digit of a hedgehog (*Erinaceus europaeus*), is no less accurate.

Fig. 18 is a digression—but being an exact counterpart of this pretty fragment of rim and made with the end of a goose-quill, it has insinuated itself into these pages in the guise of a relation.

The photograph of the negative of the cast shows the resemblance to the quill tips.

It is interesting to observe that during use the quill occasionally plugs itself with a little wad of the paste, which causes the absence of the characteristic dot from the bottom of the next few impressions, when it will clear itself again.

Fig. 19, a portion of an urn from a cist at Duncra Hill, Pencaitland (Edin. EE 80), displays two elements of decoration which, though not solely characteristic of this type of ornament, do nevertheless frequently form part of it; namely, the circular impression and the straight line. The former seems to resolve itself into three kinds: the punched hole, in which the centre is either pushed through forming a bulge on the surface of egress, or is completely removed; the rough hole with a

flat or irregular bottom which would show square or pointed in section ; and the hole which is perfectly smooth and would show a semicircular section.

This last variety could not be made with a stick unless smoothed and shaped like the tip of a billiard-cue ; but the head of the femur of any bird or animal will reproduce these smooth holes in countless varieties of size, depth and graduation of curve.

Those shown in fig. 19a are made with the femur of a stoat and the lines with the trochanter of the same bone.

This type of straight line shares this same roundness of section. A negative impression taken from this particular pot shows the lines to be perfectly semicircular in section. Almost any projection of bone produces this, while the condyles of the tibia are not only very convenient to use, but have the advantage of being able to make, if desired, parallel lines.

A series of pots illustrated in the Report of the excavation of Todoroki shell mound (Japan), XLVII, nos. 73–86, are decorated with these lines. The backs of several of the vessels are shown where the craftsman, having embarked on the voyage round the neck of the pot, has habitually failed to join up, on return, with his point of departure. The lines are shown leaving and arriving at all angles and the significant fact is very obviously demonstrated that all these lines are drawn in pairs.

Fig. 20, the last illustration, is inserted for the diversion of adherents of the 'duck' theory. It is a simple impression from a pigeon's rib.

This is the case for the bone and its claim to recognition, in its unworked state, as a primitive artistic implement, as far as it has been unfolded by these initial experiments.

It is a most simple and fascinating form of research which anyone can pursue for themselves ; but let the amateur, who is sufficiently interested to risk being seen creeping home in the dusk with the remains of a rook which has earned long-service recognition as a scare-crow ; or with a pack of local dogs sniffing behind a basketful of valuable corpses pilfered from the keeper's vermin-pole, be prepared to accept a reputation even harsher than that usually meted out to the field-archaeologist, and be thankful indeed that two centuries have elapsed since the days when participation in such rites as the stewings and brewings which next follow had its usual termination at a stake.

Very sincere thanks are due to Mr J. Graham Callander, F.S.A. Scot., Mr E. Thurlow Leeds, F.S.A., Mrs Cunnington, and Mr G. W. Smith, for their kind permission to reproduce photographs and for providing facilities for taking the casts of various pieces of pottery which appear in the above illustrations.

Arthur's Battles

by W. G. Collingwood

ARTHUR'S knights are myths. They can be traced to Celtic deities, and there is no history to be gathered from attempts to analyse legends about them. But Arthur himself is not a myth: he is a tradition. Nobody has succeeded in identifying him with any god of prehistoric Europe. He arrives unadorned, at first; it was only later that romances dressed him up in the trappings of a Viking Age hero. He is announced simply as the Roman-Briton who won twelve battles against the Saxons. 'Nennius', who says this, is as unknown as Arthur himself, but the statement is backed by the very definite mention of the crowning victory at Mount Badon in the bit of autobiography of Gildas, and by the acceptance of this by Bede as a fact.

One need hardly doubt that there was a battle of Mount Badon, fought in an unknown place and at an unknown date, some time before A.D. 520. The rest of Arthur's battle-sites listed by Nennius are incredible, as placed up to the present, not so much because Nennius is suspect as because they have been located in districts where Arthur—if he existed—could not have fought Saxons. In the period assigned to him there were no Saxons of any sort in Scotland, Northumbria, Wales or 'West Wales'. There were the Jutes in Kent; attacks by pirates on the south coast, but not yet the settlement that became Sussex; and a series of incursions, gradually becoming the Anglo-Saxon settlements, up the Thames and other rivers from the east; nothing to north or west of this before A.D. 500. It is useless to look for Arthur's battle-sites anywhere but round about the area, once highly Romanized, in southern England, in the country south of the Thames and west of Kent.

If it can be shown that enough remains to suggest identification of the battle-sites on the fringe of this area, the story of Nennius becomes credible. It is not proved, but it is not the nonsense it has been supposed to be. The whole of the list cannot be fixed, in the present state of study; but too complete a solution of the puzzle would be premature, and suspicious. And yet some of the places which Scottish writers

SKETCH-MAP TO ILLUSTRATE 'ARTHUR'S BATTLES'

have found in Scotland, the Welsh in Wales, others in the north or west, can be found where inference from archaeology and history would direct one's search, that is to say in Sussex. Nennius says that it was against Kent that Arthur fought.

1.—The first battle was at the mouth of the river Glein (or Glem). Dr Ekwall, in his recent *English River-Names*, accepts the name as equivalent to that of the Glen in Northumberland ; but there is another in eastern Sussex, the Glynde (in 1274 Glinde : the 'd' as in Celtic spelling, e.g. *Circind* for *Circinn*). Its mouth or *aber* is its junction with the Ouse near Lewes, beneath the Caburn, a British hill-fort which the explorations of Pitt-Rivers in 1878 and of Drs Eliot and Cecil Curwen in 1925 have shown to be a site occupied up to about A.D. 100, and therefore not in what is supposed to be Arthur's time. And yet on the slope of the Glynde hill the Curwens found many pits, which still remain to be explored, and may turn out to be battle burials. Now it is obvious that the Jutes would push westwards, and that if Britons tried to hold them up, this main pass into Sussex would be the scene of resistance.

2, 3, 4, 5.—The next four battles were on the river Duglas or Dubglas in Linnuis or Linuis. Such a series means a prolonged attack from a settled enemy, foiled at the main pass but trying, so to say, the back door. The back door into Sussex from Kent would be the Roman road through the Weald going south past Edenbridge and crossing a branch of the Medway called the Kent water, being the present boundary between Kent and Sussex. This stream, Ekwall has found, was in 1288 called 'le Black', which is simply English for Dubglas, a very common river-name. And further, the district of Linnuis can be understood as including this bit of country, again by the help of Ekwall's *River-Names*. He shows that in 697 the East Rother was called Liminea and in 768 the people of the district (eastern Sussex and round about) were called Limenwara(s), being in an elm-forest. A parallel name is Lennox in Dumbartonshire; the Leamhain, now by aspiration of the 'm' the Leven, is the river of the district of Leamhnach, Levenach, Lennox, the Land of Elms. The same aspiration of the 'm' would operate, perhaps later than 768, among Celtic speakers, making Limin(ea) into Leven and its district into Linnuis, which has naturally been taken for the better-known Lennox in Scotland. The early English took over from the British such district-names as Bernicia from Brenneich, Deira from Deur ; that there was a British survival even in south-eastern England is hinted by such names (if their derivation from *weala* be

possible) as the Walland marsh, and Wannock, the Welshman's nook ; and the survival among Welsh speakers of ' Duglas in Linnuis ' for the Blackwater in this land of the Limenwara is anything but impossible. Moreover, this is just the place where, after a repulse on the Glynde, the Kentish Jutes would try to force their way into British Sussex.

6.—The sixth battle was on the river Bassas or Lussas. No river Bassas is known. Skene thought he found the root *báss*, a mound, and the site of this battle, in Dunipace, near Falkirk ; but if Bassas is the right reading it may only have meant the river by the hill or hill-fort or tumulus, and we are left in the dark, for there are plenty in Sussex. If we read Lussas, Ekwall warns us off the Loose in Kent, otherwise tempting, which he judges to be a back formation from the name of the village, meaning ' pig-sty '. But Lussas may have been a river-name in the south, akin to Loddon (if that is parallel with the Gaulish Lutosa, now the Loze) or Looe (if that meant something like *loch* : for which see Ekwall, *op. cit.* 258f), and all that can be said here is the suggestion of a possible south-country site and Bassas as the preferable reading.

7.—The Cat Coit Celidon was the next battle, the war in the wood of Celidon (in Silva Celidonis). That it does not mean the Scottish Caledonia is shown by its being placed by Geoffrey of Monmouth, himself a Celt, in the Midlands, though he confused this battle with one of the Viking Age (*Hist. Brit.* IX, 3). Indeed *celyddon* seems to have been used of British forests generally, and the most famous was the Weald. If it be allowed that this fighting was against the Jutes of Kent ; that they were still trying the back door by the Roman roads ; that they had been driven back on the road from Edenbridge and then tried the next road that led to the hill-forts west of Lewes ; naturally a further attempt would be by the Stane Street to attack Chichester.

8.—The Castle of Guinnion, where this battle is placed by Nennius, looks like a translation of a phrase that would be in Welsh ' Caer Wen ', or ' Caer Gwent ', which implies a Roman-British town known as Venta-something. The best known is Caerwent, formerly Venta Silurum ; and because it is not far from Caerleon, the Roman Isca, most people have supposed that Arthur's 8th and 9th battles, the 9th being at ' Cair Lion ', were fought west of the Severn. Nothing could be more unlikely ; there are no evidences of Saxon advance so far, at the date supposed. But there were other places called Venta, and Venta Belgarum was Winchester, where early Saxon remains have been found. To Winchester, Saxons might have penetrated either by the road from Silchester or by the road from the south coast ; for the sack of Anderida was only

one of their many descents upon the rich shores of Sussex and Hampshire before they got a permanent footing in that district. It is a far cry from the Jutish kingdom overland to Winchester, but easy for a raiding band of pirates to overcome what remained of Clausentum (Bitterne near Southampton), and march up the country, to be met by Britons from Chichester or wherever were the headquarters of the main power which until then had kept Sussex from the Jutes.

9.—The Anglo-Saxon Chronicle under 501 has a story about Port, who 'landed at Portsmouth and slew a young British nobleman'. But before that time Portchester had been Portus Adurni and a Roman fort; not legionary in the proper sense, but after a couple of centuries perhaps remembered as connected with Roman troops enough to be thought a *castrum legionis* and called a 'Caer Lion'. We need not look for the ninth battle so far away as Caerleon in Wales or Chester, if the rest of our placing holds together, though Nennius says it was 'in urbe Legionis (quae Bryttanice Cair Lion dicitur)'. It is to be noted that the last phrase ('called in British Cair Lion') occurs only in the Paris MSS. known as M and N, which have been extensively interpolated; and the interpolator thought it safe to suggest Caerleon-on-Usk or Chester for the simple *urbs legionis*.

10.—The tenth battle was on the shore of Tribruit or on Trat Trevroit. That is, it was on a tidal estuary, a *traeth* as they still say in Wales. *Tri* might perhaps mean a crossing, as Ekwall interprets it in connexion with the name of Trent (Trisanton; *op. cit.* 417); but *tri* or *tre* in various British languages also means 'three'. In Gaelic, according to Joyce (*Irish Names of Places*, 505), there was a word *braghad*, 'throat' or 'gorge', applied to river-channels; his instance is the valley of the Braid, co. Antrim. Ekwall, discussing the Dorset Brit (early form *Brute*) infers a Celtic *Brutio- or *Brutia, meaning a 'rushing' river; and for the Somerset Brue, in 681 *Briuu*, he suggests a base *briw*, the 'strong' river. It is weak to argue from alternatives, but *tri+brut* would be descriptive of the triple estuary of Chichester harbour with the tide running; and its shore would be accurately described as *trath tri-bruit*. The occasion might be another piratical landing of which the Anglo-Saxon Chronicle preserves many, though confused, traditions.

11.—Mount Agned or Cat Bregomion or Breguoin was the eleventh, glossed in MSS. M and N as Cat Bregion. Agned has been identified, on the authority of Geoffrey of Monmouth (*Hist. Brit.* II, 7), with Edinburgh; together with speculations about 'Bregion' which is

supposed to point to the Picts. But the word seems to mean no more than 'of the hills': Irish *bri*, Cornish and Breton *bre*, Gaulish *brega*, *briga*. If Mount Agned could be identified with any of the many hill-forts from the Caburn to Old Winchester, near which are Saxon burials at Droxford, it would be only in harmony with the waifs of evidence we have been finding towards the general suggestion that Arthur must be looked for in Sussex. But on this point we have no further light.

12.—And finally, it is a lame conclusion to confess that no further light has yet come upon the twelfth and crowning victory at Mount Badon. Bath and the Badbury Rings have long since been given up. There is no reason to suppose that battles with Saxons, of any importance, were fought, at the time alleged, so far west. There is no mass of Saxon burials of an early date to justify the notion; only the old connexion of Arthur with Somerset and Cornwall, which comes from the much later—tenth and eleventh century—adoption in 'West Wales' of legends about his knights. The legends are not local tradition: they were probably imported from Ireland, and they took root in this district, still British, before the West was thoroughly anglicized. Hence Tintagel and other locations of the Arthurian cycle, ancient but not nearly so ancient as the bald list in Nennius of Arthur's battles, for which the geography of the Saxon settlements forces us to look in the direction in which we have found much, and others may find more.

Appendix

At the suggestion of the Editor a transcript of the best text of Nennius on Arthur's battles has been kindly supplied by Mr R. G. Collingwood, M.A., F.S.A., who also comments on the omission of reference to the Wansdyke. It appears to have been made to defend the Britons from the Saxon settlements and about the period assigned to Arthur; it would be natural to look for battle-sites in its neighbourhood and near the Bokerly dyke—indeed, as Arthur's latest battles have not been placed, further enquiry might take this suggestion into consideration; but Nennius seems to state that Arthur began with the Jutes of Kent, as the following passage shows (*Historia Brittonum*, cap. 56, from Mommsen's *Chronica Minora*, vol. III, fasc. i, p. 199; notes on variant readings here put into square brackets; MSS. M and N including late interpolations as mentioned above):—

'In illo tempore Saxones invalescebant in multitudine et crescebant

in Brittannia. Mortuo autem Hengisto, Octha filius eius transivit de sinistrali parte Britanniae ad regnum Cantorum et de ipso orti sunt reges Cantorum. Tunc Arthur pugnabat contra illos in illis diebus cum regibus Brittonum [et licet multi ipso nobiliores essent ipse tamen duodecies dux belli fuit victorque bellorum (M.N.)] . . . primum bellum fuit in ostium fluminis quod dicitur Glein [Glem, Gem, Glemu in some MSS]. Secundum et tertium et quartum et quintum super aliud flumen quod dicitur Dubglas [Duglas in several MSS. ; Dubglass in *Nennius Interpretatus*] et est in regione Linnuis [Linuis, Inniis]. Sextum bellum super flumen quod vocatur Bassas. Septimum fuit bellum in silva Celidonis [or Calidonis, also Callidonis ; Calidonis in *Nennius Interpretatus*] id est Cat Coit Celidon [cac, toit, oit, celidan ; *i.e.* ' c ' for ' t ' and *vice versa*, as often misread ; and ' oit ' with the initial lost by aspiration in composition]. Octavum fuit bellum in castello Guinnion [Guinnon, Guinon, Gunnion], in quo Arthur portavit imaginem sanctae Mariae perpetuae virginis super humeros suos et pagani versi sunt in fugam in illo die et caedes magna fuit super illos per virtutem domini nostri Jesu Christi et per virtutem virginis genetricis eius. Nonum bellum gestum est in urbe Legionis [quae bryttanice cair lion dicitur (M.N.)]. decimum gessit bellum in litore fluminis quod vocatur Tribruit [Ribroit, Robroit, Trahtreuroit, Tractheuroit. Robroit in *Nennius Interpretatus*]. Undecimum factum est bellum in monte qui dicitur Agned [Agned cat Bregomion, Agnet tha Bregomion, Agned cath Regomion, qui nominatur Breguoin (Breuoin) ubi illos in fugam vertit, quem nos Cat Bregion appellamus (M.N.)]. Duodecimum fuit bellum in monte Badonis [contra Saxones durissime Arthur bellum in monte Badonis (Hadonis) perpetravit (penetravit), M.N.] in quo corruerunt in uno die nongenti sexaginta viri de uno impetu Arthur . . . '

The 'Wild Animal Path' Origin of Ancient Roads

by Frank G. Roe

THE opinion which attributes the origin of ancient winding roads in the older lands (including England) to the 'wild animal path to the ford' or drinking-place, is no novelty to most archaeologists, even if they have made no special study of the subject. Many also are doubtless familiar with the argument from the 'buffalo trails' or paths of our Western plains, which has been adduced in support of the theory. The manner in which the buffalo argument has been used by its champions manifestly indicates a confident conviction that it is so entirely conclusive as to banish all reasonable doubt and virtually settle the question. So far as I have been able to discover, apart from the humorous suggestion in the well-known verses about the 'wobbling calf',[1] (unless I include Mr G. K. Chesterton's almost equally serious contributions to the subject[2]), the buffalo are practically the only animal illustration drawn from historic times;[3] perhaps naturally and inevitably so, for the process would necessitate gregarious hoofed animals of great size and in large numbers. Without the buffalo, apparently, the question would be driven to rest upon the relative force of various possibilities, which in the nature of things could never be proved. This being the case, it seems neither unfair nor illogical to suggest that the soundness or unsoundness of the buffalo argument becomes of the highest importance to the credibility of the wild animal theory at large. The general implications of that theory do not, as I have remarked, admit of historical investigation; the 'buffalo influence' does. The object of this paper is to present historical evidence concerning the

[1] I refer to those given by Jerrold, *Highways and Byways in Middlesex*, p. 257, as 'copied from an American magazine'. There may be others.

[2] 'The rolling English drunkard made the rolling English road'. Elsewhere he speaks of the road 'curving away'—'And here because the dog barked loud'.

[3] I shall note one or two stray references to deer or elk; but there is nothing to show that these animals originally made the paths, which are in the buffalo territory in any case.

buffalo path; evidence by no means exhaustive, but nevertheless drawn from a fairly wide field of authentic sources, and supplemented by thirty-four years' observation in what was once the heart of the Canadian buffalo country. It is of course obvious that even an entirely unanimous verdict in favour of the buffalo argument would still leave the larger question open—how far that argument could fairly apply to prehistoric England, for example. Although I hold certain tolerably definite views on that question, based upon a large accumulation of evidence, I shall here confine myself to the American continent, and to the influence, real or imaginary, of the buffalo on the origin of trails or roads in Western America. It may perhaps be proper to add that my historical researches were originally begun in no iconoclastic spirit; it was the discrepancy between the traditional opinion (which I first encountered only some ten or twelve years ago) and my own early experiences, which led me to probe somewhat deeper into the subject.

Of what might be termed didactic or rhetorical opinions there is no lack. Glanced at superficially, the reasoning often seems probable enough; it is when tested by a precise and localized criticism that it fails to convince. I shall cite briefly one or two instances from both sides of the Atlantic.

A prominent American scholar writes :—

'It is probable that they (the Indians) first made their trails in the search for food, for which purpose they needed only to follow those already made by the wild animals, especially the buffalo. The portages across country between the water-sheds of the different rivers became beaten paths . . .'[4]

Another writes :—'On the plains and prairies well-worn trails still remain to indicate the lines of aboriginal travel and trade. These paths also existed along or between the river routes, many of them originally made by deer or buffalo in their seasonal migrations or in search of water or salt. These same early trails (which generally followed the lines of least natural resistance) have since been utilized in many cases by the whites as lines for highways and railroads. "The white man, whether hunter, trader, or settler, blazed the trees along

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[4] Otis T. Mason, in *Handbook American Indians* (cited by Emma H. Blair, *Indian Tribes*, II, 199).

the Indian trails in order that seasonal changes might not mislead him, should he return" '.[5]

From an English scholar comes one of the best ' rhetorical ' epitomes of the buffalo argument I have seen.

' . . . I have little doubt that some of the principal English roads date from the times in which primitive races settled in this country, if they were not the tracks of wild animals before man adopted and used them. So, in the far west of the United States, the buffalo track, well worn by the regular migrations of the animal, becomes an Indian trail, a mountain or country road, and is constantly adopted, at last, as the line on which a railroad should be constructed. The instinct of the animal and the shrewdness of the savage, only a little higher in intelligence than the animal, have planned roughly the survey which engineering skill examines and frequently approves '.[6]

Two later and most interesting authors (*apropos* of ancient cattle-tracks still visible on Salisbury Plain) remark :

' . . . in the vast plain of Central Canada the tracks of the now extinct herds of buffalo may be seen stretching from horizon to horizon ; these may be traced from one watering-place to another on the route of their annual migrations '.[7]

I furthermore find a resident in the very city from which I write, attributing the windings of Main Street, in Winnipeg, to it ' having once been a buffalo trail '.[8] This picturesque suggestion—for which he advances no evidence—is sufficiently astonishing ; coming from one who, within half-a-day's journey from his desk, might observe winding trails in abundance in the actual process of making—by Man. As I desire above all things to avoid any suspicion of unfairness, I shall conclude these citations by passages from eye-witnesses of much higher authority ; the last particularly, as a resident in the Canadian buffalo territory for well over half-a-century.

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[5] J. D. McGuire, in *Handbook American Indians* (in Blair, *op. cit.* II, 200). Miss Blair cites a work by A. B. Hulbert, *The Historic Highways of America* (1902–3, 16 vols.) which I have not seen. Vol. VII, 'Portage trails, the key to the continent' deals with this subject.

[6] Thorold Rogers, *Agriculture and Prices*, IV, 692; cf. *Economic Interpretation of History*, p. 490.

[7] A. J. and G. Hubbard, *Neolithic Dew-Ponds and Cattle-Ways*, 1905, pp. 51–2.

[8] A. F. (' The Town Bellman '), *Edmonton Journal* (Canada), 31 March 1928.

Lewis and Clark (1804–6) state about buffalo, ' As these animals have wonderful sagacity in the choice of their routes, the coincidence of a buffalo with an Indian road,[9] was the strongest assurance that it was the best '.[10]

Sir William (then Captain) Butler described the ' immense plains stretching far into endless space ' around the Touchwood Hills as ' seared with the tracks of countless buffalo now gone ' (1870) [11]. The final authority, Rev. Dr John McDougall (speaking of a journey through what is now south-west Alberta from the upper Bow River valley across the Foothill country toward the Red Deer River, 1873) says :—

' This time we travelled by a new route through the hills. Old buffalo trails were our bridle paths, and through spots and scenes wonderfully picturesque and intensely suggestive these instinctive engineers of nature led us on '.[12]

In quoting such passages as the foregoing, one might seem to concede the buffalo argument *in toto*. In fact, such early travellers as Lewis and Clark, whose *Journals* were doubtless read by almost everybody, may have helped to originate the belief. I shall have occasion later to cite incidents, from the same writers, that may lead us to doubt the ' sagacity ' of the buffalo ; together with more specific reference to the precise type of country where these trails were to be found. So far as the level plains are concerned, the ' countless tracks ', ' stretching from horizon to horizon ', etc., etc., seem to me to be almost entirely supposition. My own acquaintance with Alberta dates only from 1894, after the total disappearance of the plains buffalo ;[13] but there were then only twelve years dividing us from that event, which is generally placed about 1882 [14] or 1883 [15]. It is incredible to me that in that relatively short time, such a maze of tracks, supposedly dating in many cases from prehistoric eras—and quite as probably so in Central Alberta, I should imagine, as anywhere else—could have

[9] Road, *i.e.* ' trail '. *Trail* never used by L. and C. ; always ' road ' or ' track '.

[10] *Journals*, III, 208.

[11] *Great Lone Land*, p. 217.

[12] McDougall, *Western Trails*, p. 108.

[13] It used to be said, *c.* 1894, that wild bands of Wood buffalo still remained ' up North ' in the Peace River country and beyond.

[14] Hughes, *Father Lacombe*, p. 263.

[15] *Ency. Britannica*, 11th ed. *s.v.* ' Buffalo '. I have somewhere read that in 1876 Fort Benton (Montana) sent 80,000 hides to market ; and in 1884, not one !

vanished so utterly from the land. Cultivation, the prime factor everywhere in obliterating processes, did not then operate to any material extent; and such ranching as was being carried on (very little then in the Red Deer Canyon country) could only serve to perpetuate and intensify such ancient tracks.

This supposed disappearance would be the more remarkable, for in many places tracks which I believe to have been originally buffalo tracks were plainly visible during the twenty-five years or so from 1882 to settlement of those localities. Such tracks, advancing along the traditional—or hypothetical—line of progress through the Indian trail stage to the recognized highway route, were certainly not 'lost in made roads'; for there were no made roads in Alberta in the early nineties. Even the Calgary and Edmonton Trail, an expropriated contour survey independent of 'road allowances', was still only a trail. While not an 'old-timer' in the earlier, western acceptation, I do not speak wholly without knowledge, for I have walked, ridden, and freighted, over miles and miles of what was the very centre of the Alberta buffalo territory; and I say in all seriousness that I have yet to see the buffalo trail of popular imagination, 'stretching out to the horizon', and so on.

It should not be forgotten that on the open level prairie, where they may wander at their will, animals are not content to be mere processions, but spread out and feed as they go. I have collected abundant references to the plain 'thick with buffalo', 'black as far as eye could reach', and the like; but not a single one so far to the 'processional' purpose, in regions where they were independent of topographical considerations, and might go where they would. Yet it seems not unreasonable to think that processions in single file across the plains, extending necessarily for miles on end would strike the traveller's imagination, just as did such processions observed by Parkman, in the defiles of the Black Hills.[16] They would do so quite as readily and forcibly as mere numbers scattered feeding over the plain. In fact, apart from the vague and generalized assertion, such as I have quoted, the mere mention in diaries of travel or exploration of regular tracks in certain places seems logically to justify the inference that they were not found everywhere.

This at least has been my experience. Apart from cowpaths made by domestic cattle—not 'inherited' from the buffalo, for I have

[16] *Oregon Trail*, pp. 314; 77, 83, 95–7, 413.

watched those of my own stock in the making—being driven home regularly from some favoured haunt with no opportunity for grazing *en route* (a totally different thing from buffalo ranging wild!), the only animal paths I have ever seen in level open country were at springs, marshy ponds or lakes.[17] At the edge of the marsh would be found well-defined tracks, often deeply worn. But at such places, whither animals from all directions came to drink,[18] their approach necessarily converged, until at last they were forced to tread in one another's footprints. These tracks extended only a few yards away from the spring and then vanished, as the animals, after drinking or resting, spread out and dispersed to graze once more. I am not competent to say whether this agrees with 'wild animal' experience in other lands or no; nor do I consider such experience in any wise relevant concerning buffalo, as compared with observation in the buffalo country itself.

The 'path to the ford', made by the wild animals coming to drink, and thereby indicating the situation of the ford to the hunter, is, I believe, mainly fancy. The supposition that animals—practically all species of which swim naturally and some even for pleasure,[19] or (what amounts to the same thing) to escape from the plague of flies,[20]—hunt about for a ford to cross a stream or to serve as a safe drinking-place, is in my view untenable. In my younger days in Alberta, when driving stock a long distancė, I have witnessed instances of young animals which to my own personal knowledge had never faced high water before, persistently 'refusing' the muddy approach to the ford across a flooded creek, crossed easily by the old cows with but a few strokes of swimming, and leaping straight off the bank into twelve feet of water to swim the entire width.

The buffalo is too well authenticated as a swimmer for the relevancy of the foregoing argument to be denied. Father Hennepin, one of the earliest observers of the animal in its northern (U.S.) *habitat*, who encountered it in northern Illinois in 1679, says:—

'They swim over the Rivers they meet in their Way, to go and

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[17] Alkali lakes sometimes preferred to rivers; Lewis and Clark, III, 180; seĕ also Hughes, *Father Lacombe*, p. 169.

[18] Quantities of bones found at a spring near High River, S. Alberta. *Palliser Reports*, p. 91 (1857–9).

[19] McDougall, *Forest, Lake, and Prairie*, p. 171.

[20] Old-timers from the woodlands often speak of bear, moose, and elk, dashing into the water in their frenzy, oblivious of human intruders.

graze in other Meadows . . .'[21] Sometimes the Indians 'sent the swiftest among them . . . who would drive whole Droves of wild Bulls before them, and force them to swim the River . . .'[22]

It is true the worthy Father has been accused of almost everything that could endanger a traveller's reputation, from exaggeration to downright lying;[23] but the swimming does not rest upon his word alone. Lewis and Clark record several instances to the same general effect:—

'A herd happened to be on their way across the (Missouri) river. Such was the multitude of these animals, that although the river, including an island, over which they passed was a mile in length, the herd stretched as thick as they could swim, completely from one side to the other, and the party was obliged to stop for an hour.[24]

Lewis and Clark mention other instances;[25] and so does Catlin, who, although he terms the process 'making a ford', specifically mentions swimming the river, which was the Missouri again.[26] John McDougall witnessed the 'unique sight' of some thousands crossing the north Saskatchewan River about 200 miles below Edmonton, July 1863, but he does not specify swimming.[27] It may be added, however, that our western rivers, speaking broadly, are fordable everywhere or nowhere, according to recent weather conditions.

Buffalo also crossed on the ice in winter,[28] under conditions necessarily quite different. Their ice-trail might easily be over the very deepest stretch, scarcely fordable at any time; one which, treated in the following summer as a 'path to the ford', might lead straight to disaster.

That 'sagacity' also, of which mention has been made, was not always apparent. I have been told that in dry seasons, when water was not to be had at many customary spots in small creeks and the like, the thirsty herds on approaching a river or lake, would stampede

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[21] Hennepin, *New Discovery* (ed. Thwaites) I, 146.
[22] Ibid. I, 242.
[23] See the learned editor's Introduction.
[24] *Journals*, III, 237.
[25] *Journals*, I, 265–6, 306; III, 237, 238.
[26] *Letters*, II, 13–14.
[27] *Saddle, Sled and Snowshoe*, p. 63; so also, somewhere in the same locality, Sept. 1862, Milton and Cheadle, *North-West Passage*, p. 59.
[28] Lewis and Clark, I, 199; Father De Smet, *Travels*, III, 852; McDougall, *Saddle, Sled*, etc., pp. 255, 270; and a description, Bow River; *Western Trails*, p. 237.

straight down-hill at a lumbering gallop and rush into the water like mad things, oblivious of fords, drinking-places, shallows, and the rest of it; and so precipitately, that the foremost were frequently trampled under foot and drowned.[29] Near Great Falls, Montana, Lewis and Clark remarked :—

'They go in large herds to water about the falls, and as all the passages to the river near that place are narrow and steep, the foremost are pressed into the river by the impatience of those behind'.[30]

Father Lacombe's biographer records something similar during a journey down the Missouri by boat, 1869. The Father speaks of 'watching herds of buffalo come crashing through the trees on the river bank and precipitate themselves into the current'.[31]

I fear that some scholars, in bringing to the aid of their argument a creature they call a 'hunter',[32] who needs an animal surveyor to direct him to a ford, and who can only find his way back by 'blazing' the trees',[33] (this too in regions where the only trees are often in the one precise place where nobody need be lost—the river-valley!) merely record their general incompetence to gauge the hunter-mentality. Such a man, living as he can, and a master of the arts of the wilderness, is a different being entirely from even the pioneer settler, resourceful though the latter must be.[34] My own case may make the distinction clearer. There are few tricks in the trade of woodsman and pioneer settler that I have not been forced by circumstances to acquire, and so far as knowledge is concerned, I could resume the life to-morrow; but as a hunter I should be the veriest novice.[35] The hunter too, is burdened by no cumbrous wagons or 'women-folk'; he is as independent and care-free as the game he stalks, for when he dare not swim a flooded river with his horse, the animals would be equally timid. So far as the hunter and the ford are concerned, I contend

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[29] McDougall mentions a similar propensity when excited by a hunter (not meaning 'Indian pounds') *Western Trails*, pp. 230, 236.

[30] *Journals*, I, 352.

[31] Hughes, *Father Lacombe*, p. 172.

[32] Above, note 5. 'Whether hunter, trader, or settler'; as if all were alike!

[33] In Hennepin's journeys, they marked the trees with crosses to identify their party to those who should follow (*New Discovery*, I, 143, 144); a very different thing! Early forest settlers blaze their boundaries and clearings.

[34] See on this, Parkman (who had unrivalled opportunities for judging, in 1846) *Oregon Trail*, pp. 15–18, 65–80, 100–3, 132–5, 169, 294–7, 309, 356, 459.

[35] For a moose-hunter's tactics, see Butler, *Wild North Land*, *pp.* 206–10.

that fords would reveal themselves to experienced observers, even if there were not a single animal in the country; and they have, I believe, become well-known in such lands as Western America long before the advent of the man who is *compelled* to use them.[36]

There is in my opinion one vital defect in the attempt to link the human highway with the animal track. That defect is the absence of incentive. All road-making peoples (using the term to signify at least some degree of permanence) have had a definite objective in view. This is not the place, neither am I competent, to discuss the question of aboriginal or prehistoric Indian trade-routes ; it is sufficient to say that if such a commerce existed, the incentive is supplied at once. I cannot believe that such a commerce could develop, and then lie dormant pending the fortuitous development of trade-routes in such a manner; neither can I doubt that such a commercial instinct would have asserted itself irresistibly, and found its own routes, even if buffalo or deer had never existed at all.

Incentive I take to mean something more than the desire to gratify the mere needs of the moment, food, drink, or shelter. Even the instinct which leads certain animals to provide for the winter can scarcely be included in the category of incentives, as we apply the term to the far-seeing purposes of mankind. If it could, I know of no species less entitled to be credited with it than the buffalo, among possible trail-makers ; for it may be doubted if there ever existed a more aimless, unreliable, incalculable wanderer upon the face of the earth. The fundamental principles of the *water-route* by river and

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[36] John McDougall's books reveal a calm indifference to fords, also a capacity for judging or finding such when essential. *Saddle, Sled*, etc., pp. 166–74, on his crossing the flooded S. Sask. in 1863, and the resourcefulness shown. Cf. *Western Trails*, pp. 24–5 (Bow and ' Big ' Red Deer Rivers); pp. 27, 29–30 (N. Sask.), p. 30 (S. Sask.). ' Finding a ford ' in the Red Deer Canyon ; ibid. p. 48. ' Big Red Deer ', all day-finding one, Oct. 1873—' the three requisites, approach, ford, departure ', ibid. pp. 85–7, 97. Summer 1874—the flooded Battle, Blindman, and Red Deer rivers ; pp. 179–81. Swimming the Bow River, 1875, in the summer floods, p. 276. Nine rivers in S. Alberta in 200 miles, all high and strong, 1875 ; ibid. p. 272. See also on this, Father De Smet's *Travels*, I, 222, 308–10.

Mr Watkins (*Old Straight Track*, pp. 42–8) has much to say concerning ' sighting points ' to fords to reveal their situation to strangers ; but after the first few times by the discoverers, would not their path indicate the direction ? Even the circumstance that down certain straight streets the Thames (at high tide—a strange season for identifying a ford !) can be seen from the Strand proves them (to his satisfaction) to be ' leys ' (p. 42). He does not say if there is a ford opposite each ' ley ' or not.

lake with its connecting portages ; its persistent adherence to the one particular channel out of many, apparently no better (or even visibly more difficult) than seeming alternative ones ; its ruthless abandonment of this at the point of real—yet perhaps by no means evident—strategic importance ; the careful weighing of the considerations which define the presence or absence of these governing factors in any given instance ; —all these I consider to be alien to every authenticated instinct of the buffalo, and to be unmistakable evidence of its human origin. To look for the beginnings of such a complex organization as the Hudson's Bay boat brigades, for instance ;—converging from the Mackenzie, the Athabasca, and the Saskatchewan, by skilfully-selected water-routes (of whose careful exploration by mankind we actually possess historical knowledge) to arrive simultaneously at York Factory at a predetermined time ;—to seek the origin of this organization in the desultory meanderings of an animal of no very high *proven* intelligence may be deemed picturesque ; to me it seems futile and almost frivolous.

For similar reasons, I entirely disbelieve in the great American transcontinental cart and wagon trails being of buffalo-track origin. The trail along the water's edge of our western streams is impracticable and needlessly difficult for man, and probably of little use to the buffalo, who needed access to and from the water rather than a ' water-grade ' trail by the side of it, such as might serve for a railway. The path ' *to* the ford ' is the one thing the freighter avoids as long as may be ; and from the ford to more solid ground he hastens as speedily as he can. Furthermore, the general direction of the great American trails like the Santa Fé and the Oregon Trail was parallel with the rivers flowing from the Rockies, and as much along their watersheds back from the edge of the wide river-valley as possible, for reasons obvious to any man who ever freighted in the West.[37] On the ' animal path to the ford ' hypothesis, such a route, like our ' green roads ' and ' ridgeways ' in England,[38] is for its supposed animal creators an absurdity,

[37] Lewis and Clark (not then on horseback) finding ' dry ravines so steep and numerous along the upper Missouri as to compel them to keep to the river '. *Journals*, I, 322. Later for the same reason (being then on horseback) having to keep back from the edge of the river-valley, on the plain (' bench ') above. Ibid. III, 182.

[38] See on these, R. Hippisley Cox, *Green Roads of England* ; Belloc, *Old Road*, etc. *cf.* Lewis and Clark—' pursuing their route over the ridges of the highlands, so as to avoid the bends of the river '. *Journals*, III, 220. Parkman—' The Arkansas ? (River) makes a bend, and a smaller trail, known as " the Ridge-path ", leads directly across the prairie from point to point, a distance of sixty or seventy miles '. *Oregon Trail*, p. 452.

leading from nowhere to nowhere. In the case of the Santa Fé Trail historical evidence appears to indicate that it was of human design :—

' It is remarkable how the old plains men who laid out the Santa Fé trail across the State of Kansas and on into New Mexico were able to follow the grades so well and get such a straight road. They simply used their eyes, for in those days there were no engineers on the western plains. " We tried to beat it with our own engineering ", W. B. Strang said, " but we finally ended by following the old trail made by the wheels " '.

My argument so far has been of a general character, based on the acceptance or rejection of the opinions of others. I shall now very briefly present my own views on the questions of ' regular migration ' and its corollary—the track.

So far as one may judge from fairly wide testimony the ' regular migrations ' of the buffalo seem to be largely mythical. In fact, if migration is to bear the sense applied to migratory birds (that of regular flight from one country to another), the term itself is almost a misnomer as regards the buffalo. I prefer therefore to speak of their ' wanderings '. The only wanderings in any degree regular seem to have been that the buffalo commonly sought shelter in the scrublands or woods in the dead of winter. This fact has been noted both by scientific observers passing through their territory, and by residents of long experience.

There are many statements by writers which clearly point to the erratic and wholly unreliable character of the buffalo wanderings. In my view this is established beyond reasonable doubt and I incline to the belief that it is possibly the real explanation of certain of the many references to the ' disappearance of the buffalo '.

With regard to the buffalo path, it has, like the ' regular migration ', received much more attention (so far as my investigations have taken me) from the historical generalizer, than from those travellers who might be supposed to be the principal authorities. Buffalo trails are mentioned by several writers but so far I have found only one allusion which possibly—though by no means certainly—indicates the path of popular supposition : *i.e.* one stretching across open country where an absolutely free choice might be made. Lewis and Clark, along the Yellowstone in 1806, mention that ' the plain was intersected by several great roads (' trails ') leading to a gap in the mountain, about twenty miles distant. They do not specifically claim these ' great roads ' as

buffalo trails, although the trail through the gap or pass itself is described as a ' buffalo road over a low gap '.[39]

Investigation tends to show that these trails were more probably due to the local topographical conditions than to any particular trail-making predilections in the buffalo. In other regions where physical characteristics are similar the Indians themselves had regular trails, which they took pains to keep open.

Finally, a brief remark on the buffalo trail ' which becomes a railway route ' ; and the sagacity displayed by these ' instinctive engineers of nature ' in forecasting the later choice of trained professional men. The secret lies in that incidental clause in the quotation given above, about ' the line of least resistance '.[40] I incline to believe the paths were made originally *up* the hills rather than down them, for evidence already cited goes to show that the buffalo were ready enough at times to stampede down the hills, as no animal could do for long in going up. It is of course quite true—I have seen more than one such place, including one in the city limits of Edmonton—that railways have been surveyed down the winding valleys of tributary creeks to our great rivers, where something approaching a ' water-grade ' was practicable. This is in fact one of the two standard methods of climbing into or out of a deep river-valley ; the other being (where the desired route lay roughly along the course of the stream) a winding grade along the hillside ; which English readers may see on the London and North Eastern railway main line up the Don valley from Sheffield toward Woodhead summit, one of the few bits of ' American ' railroading known to me in England. On a viaduct near Wadsley Bridge station (known to every Sheffielder as the ' Five Arches ') the line crosses what is a typical instance of the valley of a creek or a dry ' coulee ', such as occur continually along our Western river valleys. It is such places as these down which the buffalo paths are found.

So far as ' sagacity ' is concerned, I fail to see any evidence of conscious selection. Precisely as I have noticed many a time with range or domestic cattle, in grazing along the slope of the hillside, their flank would naturally be turned by the creek debouching into the main stream, and they would continue up this narrow valley, the outliers grazing as they went along, the main body nearer the hollow centre forced into one or two paths, for there is seldom one only at any place

[39] *Journals*, III, 215, 216, 218.
[40] See note 5.

I have seen. Those valleys down which a creek flows, the only ones at all practicable for a railway, occur at intervals of six to ten miles, roughly corresponding to the width of the valleys which they drain into the larger rivers, and which are divided by a succession of low ridges, running north and south even on the so-called ' level prairies '. Between these creek valleys are found the ' dry coulees ' to which reference has been made, and these are often only a mile or so apart. If it could be shown that the buffalo paths were confined to those larger valleys containing creeks, leaving the others (which are only slightly less steep than the main hillside) unused, I should be much more disposed to concede the argument for sagacity. But the buffalo tracks are to be found down all alike ; and the mere fact that out of a mass of roads made by these animals, *some* prove suitable for other uses, proves nothing about sagacity, in my opinion.

To my own knowledge, two such places have been utilized by the Canadian national railways in this district. One, from the Battle River up to Camrose, Alberta, reduces the tonnage capacity of engines by about 25 per cent. The other, a low-level line across the Saskatchewan in the city of Edmonton itself, is virtually prohibitive ; and as I write, the company at great expense are constructing a cut-off some ten miles in length, in order to bring full tonnage across the river on a high-level bridge some few miles outside.

NOTE.—We regret that owing to pressure on our pages it has been necessary to omit much of the detailed evidence for the general opinions stated by Mr ROE.—EDITOR.

The Syrian Town of Katna and the Kingdom of Mitanni

by Ch. Virolleaud, Director of Antiquities, Syria

THE name of the Syrian town of Katna is first met with in the El-Amarna Tablets, a collection of 300 letters written in Babylonian and found in 1887 at El Amarna in Upper Egypt. These letters were addressed by the princes of Palestine and Syria to their allies or suzerains, the Pharaohs Amenophis III and Amenophis IV, in the first half of the fourteenth century. Four or five of these letters of El Amarna were actually written from Katna itself. They show us the Prince Akizzi expressing to the Pharaoh Amenophis III his feelings of loyalty, and at the same time asking his help against the Hittites, who then occupied a large expanse of territory in the north of Syria, thus threatening the Valley of the Orontes.

It is known, moreover, that Shubbiluliuma, the king of the Hittites, occupied Katna about 1360, and that he had had transported from it to his palace of Hattushash in Anatolia the spoils which he found there.

We did not know the history of Katna, however, until quite recently, and the site of the town was unknown until the Comte du Mesnil du Buisson, helped by M. Ploix de Rotrou, found it at Mishrifé in April and May 1927. A whole series of documents was revealed, proving that the village of Mishrifé was built on the ruins of Katna. At the same time were discovered the names of the predecessors of Akizzi, the plan of the temple, the composition of the treasure stored there, and finally, the name of the divinity, to whom the temple was dedicated (cf. Antiquity, 1928, p. 87, and Syria, 1928, p. 90 ff).

Three new cuneiform texts were obtained in 1928 at the end of the spring campaign. They form a useful supplement to the references obtained from the documents excavated in 1927. These three inscriptions are quite short. They comprise a fragment of a tablet of small dimensions and two small, less well preserved tablets. They were found almost on the surface, not in the ruins of the temple, but at the foot of the mound on which it had been built.

The fragment contains a series of prophecies belonging to the fourteenth day of the twelve months of the year, evidently derived from the eclipses of the moon. It is an extract from one of the chapters of that great treatise on astrology of which dozens of fragments have already been found at Nineveh in the ruins of the palace of Assurbanipal—a treatise which the Babylonian priest Berosus must, at a much later date, about 280 B.C., have translated into Greek when he resided at Cos on the Ionian coast, when he gave that course in astrology which had such a success in the Greek world.

It is true that the Katnian fragment teaches us nothing new about the doctrine of the Chaldean astrologers (or as they were called during the Roman period, the Chaldeans). But what makes this document so interesting is the proof it gives that already in the first half of the 2nd century the Syrians had at their disposal extracts from (if not complete copies of) this book, which for so many centuries regulated the life of peoples ; for no undertaking of any kind was begun without consulting it.

One may infer moreover, that the various sciences concerned with divination were not the only ones to be studied on the banks of the Orontes at this remote epoch ; and that the temple of Katna, like all the shrines of Mesopotamia, possessed a regular library. It would not be surprising if we were one day to find in Syria epic poems or Babylonian myths ; since we know that the Pharaohs of the 18th dynasty and the contemporary Hittite rulers in Asia Minor kept, in their archives, copies of such legends as those of Adapa and Gilgamesh.

Further, the excavations of Katna in 1927 revealed the fact that the protecting deity of Katna was a Babylonian goddess called Nin-Egal (in Accadian, Bêlat Ekallim) and that the inventories of the temple treasure were drawn up in Babylonian. Thus, to judge from the evidence of the cult, the beliefs, and writings of the Katnians, from their calendar and their system of weights and measures, and finally from the actual plan of the temple of Nin-Egal, one must conclude that the town of Katna was a Babylonian colony ; just as certain towns of Cappadocia were, about the same period, Assyrian colonies.

But, if it is very probable that Katna was indeed originally a Babylonian colony—that is to say, in the 3rd millennium, in the time of Sargon of Agadé and of the kings of Ur—, on the other hand, at the time to which our excavations relate, between the 19th and 15th centuries, if the culture is still wholly Babylonian, the people of Katna now show few, if any, traces of Semitic culture. One sees proof of this, particularly

in the proper names of men, about fifty in all, of which as many are found in the texts discovered in 1927 as in the two tablets found in 1928, which were actually lists of proper names.

With a few exceptions, the names of the inhabitants of Katna are in no way Babylonian, nor are they Amorite. In a word, they have nothing Semitic about them. They are purely Asianic or Nordic—and more precisely, Mitannian.

The name of Mitanni was then applied to the north of Syria and Upper Mesopotamia. One of the principal towns, possibly the capital, was Harran, a town which certainly possessed, from this time onward, its famous temple of the Moon-goddess. It was still flourishing in the 4th century of our era, when the Emperor Julian made a pilgrimage to it, and offered up a sacrifice to the goddess Luna.

The kingdom of the Mitanni was therefore of great extent, so great that it was often called, on the principle of designating the whole by one of its parts, by the names of its different provinces :—Subartu, Hanigalbat or Nahrima. In all, the Mitanni covered the group of territories which later formed the kingdom of Assyria, using this term in its widest connotation, that is to say, Syria itself and the countries bordering it, Armenia in the north and northern Syria to the west.

The Mitannian power appears to go back to the beginning of the 3rd millennium. In any case, according to the Assyrian tradition itself, the town of Assur, the oldest capital of Assyria, had been founded about the 25th century by two Mitannian kings, Ushpia and Kikia, one of whom was reputed to have built the temple of Assur, and the other, the ramparts of the town. As for the Mitannian language, we know little more of it than is contained in a long letter from the Mitannian king Tushratta to Amenophis III. This document is enough to prove that Mitannian was connected with Hittite, that is to say, with the language of the records of Boghaz-Keui.

Before the excavations of Mishrifé-Katna only a single Katnian name was known, that of Akizzi, who reigned, as I said above, in the time of Amenophis III. Now this name of Akizzi is clearly Mitannian. The first element *Aki* belongs to the root *Ak*, meaning ' offering ', and the second element *-izzi* occurs in other Mitannian names such as Pir-izzi. In the tablets coming from Katna itself, the element *Ak* is probably found in Ak-bite, and certainly in Aki-Teshub and in Aki-ia. The ending *ia* is frequent in the vocabulary of Katna. In addition to Aki-ia, one may cite :—Daki-ia, Ebi-ia, Itti-ia, Hashi-ia, Huti-ia, and Si-ia. Several of these names, or names of the same kind,

appear in the numerous texts, which the excavations of Kirkuk have brought to light. Kirkuk lies to the south-east of Mosul on the Tigris, and is 440 miles in a direct line east of Katna. This connexion is easily explained, since according to M. Contenau 'the region of Kirkuk appears throughout all periods, as a thoroughly Mitannian country'—(*Babyloniaca*, IX, 86).

These names with the ending *ia* are those of merchants or scribes. The names of kings of Katna do not belong to the same type, although we know of the names of Mitannian kings—such for instance, as the founders of Assur, Ushpia and Kikia—which clearly fall within this category. Several of the names of the kings of Katna begin with the syllable *Shal*, which has never yet been met with in the Mitannian vocabulary. Other names end in *lumma* or *limma*, which is undoubtedly the Mitanno-Hittite *liumma*, best known from the name of the great conqueror Shubbilu-liumma.

Names compounded with the names of gods are extremely rare at Katna, and it is remarkable that not one of these contains the name of the goddess Nin-Egal, although she was the patroness of the town. The name of Sin, the great god of Ur—to whom Nin-Egal, at Ur, was subsidiary—appears only once, in the king's name Sin-a-tum. There is another king's name, which occurs right at the beginning of the inventory of the treasure, and which should, therefore, be the name of one of the oldest dynasties of Katna. This name is Epiri-Sharri, which is written phonetically E-pi-ri-Shar-ri, with the Sumerian variant, En-lugal. From this one may conclude, at any rate provisionally, that the kings of Katna still bore Mesopotamian names at a period when the treasure of Nin-Egal first began to be formed, that is to say, in the time of Hammurabi or a little later; and that it was only in the 18th or 17th century that the kingdom of Mitanni extended to the Orontes.

To the facts supplied by proper names should be added Mitannian words which are met with in the documents of Katna, such as *azalwannu* and *shirwanashe*; also certain Mitannian glosses which were found a long time ago in the letters from Akizzi to Amenophis III. These were sufficient of themselves to prove that though Babylonian was the official language of Katna, that spoken by the common people was Mitannian.

Finally, it should be observed that the name Mitanni itself never occurs in the tablets of Katna. The only name of a country met with is that of Tukrish or Dugrish. We know from the documents themselves, that in Tukrish was made embroidered cloth, that is to say

objects called *zizzatu*, whose exact nature is not known, and also golden eagles. These eagles probably had a symbolical meaning ; perhaps they represented some divinity. Moreover, they seem, in any case, to have been the most characteristic product of the country of Tukrish since their name was Tukrashi, evidently the ethnic adjective of the name Tukrish. Tukrish, this eagle country, was certainly a mountain region ; and since, in a letter of the time of Assurbanipal, we find the mention of a town of Tigrish in Armenia, one may suppose that Tukrish and Tigrish are one and the same name, and that the country of Tukrish should be looked for in the region of the lake of Urmia. In the time of the Median wars this same country was occupied by a people whom Herodotus calls the Matieni, and in whom Théodore Reinach thought he discerned the last descendants of the Mitannians.[1]

It seems to follow from these observations that Tukrish was a district of the Mitanni, and that, for reasons which escape us, the whole of the Mitannian region was called at Katna by the single name of Tukrish, just as elsewhere Subartu and Nahrima were spoken of.

To sum up :—the origin of the city of Katna goes back to the 3rd millennium, to the time when Syria and eastern Asia Minor belonged to the Babylonian Empire. The residence of the Babylonians in these countries must have been of long duration. In any case, they exercised a deep influence, so that all these peoples, so different in character, adopted Babylonian or cuneiform writing, and had to express themselves in Babylonian or translate their thought into their native language.

This state of affairs lasted up to the end of the dynasty dominated by the impressive figure of Hammurabi ; but in the 20th or 19th century important changes took place ; a foreign people, the Cassites, captured Babylon. The kingdom of the Mitanni, already including Armenia and Syria, extended gradually over the whole of Syria, and certain provinces of Palestine. It had not, however, reached the Phoenician coast, and the greater part of Lebanon, which was occupied by the Amorrheans.

Although the conquest of Syria by the Amosis and the Thutmosis in the 16th century put a stop to the development of Mitannian power, yet this kingdom remained prosperous up to the time of the Amenophis. It was then that the Pharaohs attempted to ally themselves with the Mitannian kings. They exchanged rich presents with them, and several Mitannian princesses became queens of Egypt. Of these, the

[1] Congrès International des Orientalistes, 1894 : *Un peuple oublié, les Matiènes.*

beautiful and famous Nefirtiti, wife of Amenophis IV, the father-in-law of Tutankhamen, was probably one. It is quite likely that these alliances were primarily concluded as a means of defence against the common foe, the Hittites, but the precautions taken could not prevent Shubbiluliuma from invading Syria about the year 1360, and reaching as far as Katna and no doubt a little farther. Katna never recovered from the blow. It was so completely ruined that a few generations later even the site was forgotten, and its name was transferred to some ruins 15 miles away, still called Kattiné.

Long afterwards Katna was to be replaced by the great town of Emesa, lying 11 miles to the south-west, which, under the slightly modified name of Homs, was, and still is today, the capital of Central Syria.

Such appears to us to be the history of Katna. Doubtless it is only an outline . . . But it is certain that future researches will enable us to fill in the detail ; and if discoveries like this continue to be made, it will then be possible to write an entirely new chapter in the history of the people of the East, to be called the Ancient History of Syria.

Prehistoric Macedonia[1]

by W. A. Heurtley

THE excavations so far made in Macedonia are as follows :—

In the valleys of the Vardar (Axiós) and Gallíko (Echédoros)

Chauchitza, Kilindír } by S. Casson, 1921, 1922, and 1924.

Várdino, Vardaróftsa } by the British School at Athens, 1924–1926.

In the neighbourhood of Salonica

Sédes, Góna, Kapoudjilar } by the Archaeological Service of the French Army, 1917–1919.

In the valley of the Haliakmon

Bouboústi, by the British School at Athens, 1927.

In the Lankadá valley

Sarátsi, by the British School at Athens, 1929.

In Chalcidice

Molyvópyrgo, Hágios Mámas } by the British School at Athens, 1928.

Kritsaná, by the British School at Athens, 1929.

To the above must be added the Early Iron Age cemetery at Pátele excavated by Russian archaeologists before the War ; and a neolithic stratum discovered by the American excavators at Olynthus in 1928.

By central Macedonia is here meant the region between the Struma and the Vardar, and the neighbourhood of Salonica. Of Macedonia, east of the Struma no mention will be made.

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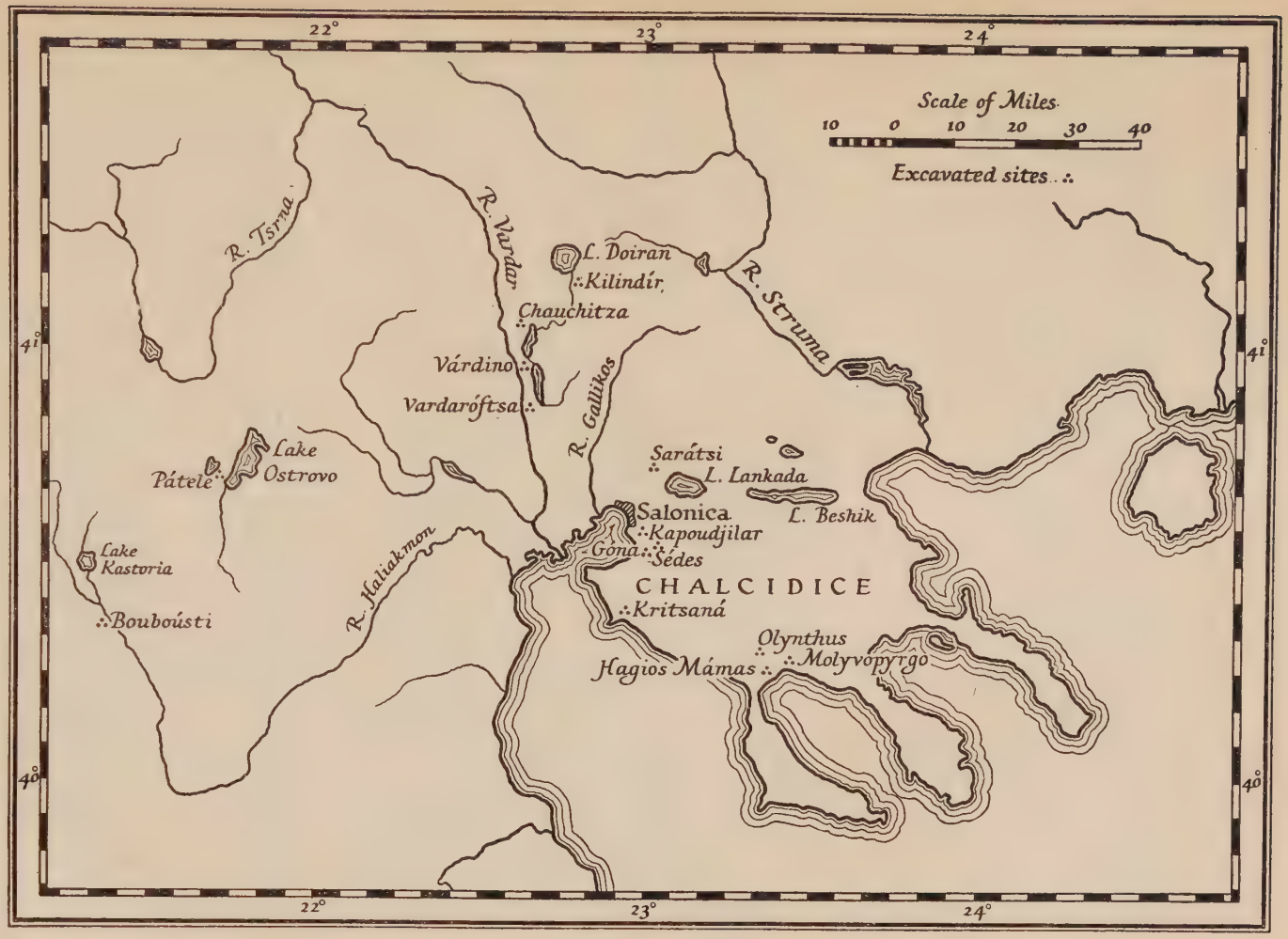
[1] A communication made to the Academy of Athens, 21 Feb., 1929.



ANCIENT SITES IN MACEDONIA

Neolithic Age

The neolithic culture in Macedonia resembles very closely that of the second Thessalian period. *Both* the varieties of the Thessalian B culture, i.e. that of Dimini or eastern Thessaly, and that of central and western Thessaly have been found in Macedonia. Since both seem to be earlier in Macedonia than in Thessaly, it looks as if the movement, if movement there was, was from north to south, and not *vice-versa*. The few sherds of the Thessalian A type[2] however, which have been found in Macedonia, may point to an earlier movement in the opposite direction.

Copper and Bronze Age

Early Macedonian Period (*c.* B.C. 3000–2000)

At the beginning of the Bronze Age, central Macedonia and Chalcidice were colonized by people coming, as it seems, from Asia Minor—a parallel stream of the folk that flooded Crete, the Islands, and the mainland Greece about the same time.

The excavations have revealed what it was that attracted them to Macedonia, since, in the lowest stratum at Vardaróftsa, and actually on virgin soil, were found pieces of gold slag.

During this period the trade relations of Macedonia seem to have been, not with the southern Aegaean, but rather with Troy and probably with the coasts of the Black Sea and south Russia.

This conclusion rests on the fact that only two pieces of obsidian have so far been found in Macedonia, and on the discovery in Chalcidice of stone axes[3] and striated bone beads[4], characteristic of the graves of south Russia. Similar axes have been found in the second city of Troy.[5]

Middle Macedonian Period (*c.* B.C. 2000–1650)

From the beginning of the second period of the Bronze Age, the history of central Macedonia and the history of Chalcidice diverge, the one from the other. In both places the Anatolian culture was interrupted, but whereas central Macedonia fell under the influence

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[2] *e.g.* at Sérvia, at the foot of the pass into Thessaly, and at Aivátli in the Lankadá valley; but the latter are not certainly Thessalian A.

[3] cp. Tallgren, *La Pontide préscythique*, fig. 48, 5, fig. 68, 1, 5

[4] cp. *ibid.* fig. 63, 7.

[5] cp. especially Schliemann's *Sammlung*, nos. 7182–7195.

of her northern neighbours, Chalcidice, as other parts of Greece, was overrun by the Minyans. There is some reason for thinking that the Minyans were people of the second city of Troy, and of its neighbourhood, who whether as conquerors or as refugees passed into Greece, where, by reason of their numbers, they were able to overcome the older population and establish themselves in their villages. As coming from the second city of Troy, it is quite possible that the Minyans were Indo-Europeans, and consequently introduced an Aryan speech into Chalcidice and into Greece.[6]

In central Macedonia on the other hand, though there is evidence that Minyan influence reached there, we have to do rather with the incursion of northern tribes, since, simultaneously with the appearance of Minyan ware in Chalcidice, pottery bearing incised ribbon spirals appears in central Macedonia. This type of pottery bears a strong family resemblance to Danubian pottery of an earlier date. It is possible, however, that it developed in Macedonia from the incised style of the previous period, with which it has much in common, and that the resemblance of the Macedonian to Danubian is merely due to the proximity of the two areas. In any case, it is noteworthy that neither in central Macedonia, nor in Chalcidice, did certain pottery forms characteristic of the preceding period entirely disappear, and we may conclude that a remnant of the former population remained on the spot, though their relation with the new-comers cannot be closely defined.

Some had, earlier, passed into Thessaly, where they created the culture of the third Thessalian period. The traces (especially the characteristic 'wish-bone' handle),[7] of these Macedonian emigrants are found in various parts of northern Greece, e.g. in the Spercheios valley, at Orchomenos, at Thermon, in Lefkás, at Volo, and finally, at a later date, at Bouboústi in the Haliakmon valley.[8] The conclusion is that they took to a nomad life, and were scattered throughout northern and central Greece, on both sides of Pindus. It is worth noticing that their traces correspond, to a large extent, to the wanderings of the Dorians, as described by Herodotus.[9]

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[6] cp. Childe, *Aryans*, p. 134.

[7] cp. *B.S.A.* XXVIII, p. 186, fig. 32, for the distribution of this handle.

[8] Perhaps they even got as far as Mycenae. At any rate there is a good example of the 'wish-bone' handle on a matt-painted vase from the first shaft-grave. cp. Furtwängler-Löschcke, *Myk. Thongefässe*, pl. I, 6.

[9] Herodotus, I, 56.

Late Macedonian Period (*c.* B.C. 1650–1100)

In the third period of the Bronze Age relations between central Macedonia and Chalcidice were resumed, and, in both areas, appears identical pottery decorated with patterns, mainly rectilinear, in matt-paint, recalling, to a great extent, the incised decoration of the first period. It seems that in both areas the older element in the population had revived, or perhaps the fusion between the old and the new had become more complete.

An interesting point is that at Vardaróftsa, at a depth corresponding to the beginning of this period (i.e. *c.* B.C. 1600), were found pieces of iron slag, so that we cannot doubt that the knowledge of iron-working was known in Macedonia, before the arrival of Mycenaeans, and it may well have been that this still rare and precious metal was one of the objects that attracted the Mycenaean traders.

At the end of the period (*c.* B.C. 1150) the Vardar valley was overrun by barbarians, coming from the Danube region, probably southern Hungary. In the toumbas of Várdino and Vardaróftsa, in burnt strata corresponding to the end of the sub-Mycenaean age, were found characteristic vases of the late Danubian Bronze Age, e.g. bowls with fluted rims, and two-handled urns and cups with fluted sides and handles. These invaders do not seem to have stayed long, but their arrival forced some of the native Macedonians to take refuge in Thessaly, thus following the footsteps of their ancestors.

The concentration of these refugee Macedonians in north Thessaly, increased, it seems, by kinsmen from the Haliakmon valley, and later by some of the Danubian invaders, constituted perhaps the last phase of the Dorian wanderings, before the final invasion of the Peloponnese.

The Iron Age (*c.* B.C. 1100–)

Early in the Iron Age, the former inhabitants, or their descendants, returned, and rebuilding their homes, continued their traditional half-agricultural, half-mining life, the invaders either having passed on, or having become assimilated with them. Relations with the Aegaean were not resumed until the arrival of the Greek colonists in Chalcidice. In central Macedonia the stages of Greek penetration are faithfully reflected in the finds of imported Greek sherds at Vardaróftsa, of which the earliest are Corinthian, and the latest Hellenistic.

At the conquest of central Macedonia by Makedones from Pindus, related by Thucydides,[10] there is at present no special archaeological

[10] Thucydides, ii, 99.

evidence which can be claimed in support, but on the other hand there is nothing to contradict it.

Conclusions

In the light of the excavations, it is possible, with due reserve, to draw the following general conclusions :

(1) The chronological scheme, which has been accepted for Crete, for the Islands, and for mainland Greece holds good for Macedonia.

(2) The evolution of prehistoric Macedonia is parallel with the evolution of the Aegaean, with the northern half of which it is closely bound, and, in consequence, Macedonia must be regarded as an integral part, even though at times a detached part, of the Aegaean world. It did not, however, receive any direct influence from Crete, while *central* Macedonia, on account of its geographical position, was exposed to pressure from its neighbours to the north, by whom it was invaded at least once, and possibly twice. The effect of these invasions was, it seems, neither marked nor permanent.

(3) The archaeological results support the claim that the Macedonians were Greeks, because, if we accept the view that the creation of the Greek race was due to the mingling, about B.C. 2000, of Indo-European (Minyan) invaders with earlier Anatolian settlers, then it is unquestionable that Chalcidice became Greek at the same time and in the same way.

For central Macedonia the case is somewhat different, since, either on account of the conservative character of the older population or on account of the presence of the northern tribes, Minyan influence was less strong there. But, at the beginning of the third period, central Macedonia and Chalcidice were re-united, as we saw, and, as a result of the mingling of the two peoples, it is likely that the inhabitants of central Macedonia became Greek and adopted the Greek language. And it is not impossible that the Mycenaeans, whose settlements in Macedonia were, as we know, numerous and important, helped to spread the knowledge of the Greek language.

However that may be, from the archaeological point of view there is no objection to the claim of the ancient Macedonians that they were Greeks, nor to the opinion of many modern scholars that their language was Greek.

The excavations so far completed must be regarded as pointing the way rather than as establishing proved facts. Only excavations on a wider scale will shed full light on the problems here referred to, such as the origin of the Minyans, of the Dorians, and in general of the Greek race. Of all these problems, however, it is possible that Macedonia holds the key.

Assam Megaliths

by J. H. Hutton

ASSAM is one of the very few remaining areas in which rude megalithic monuments are still erected and, like the most notable of the others—Madagascar—is on the fringe of the diffusion area of Indonesian civilization. Far apart as the two countries are, rough stone monuments are in both associated with a cult of the dead ; both areas have cultural connexions with the Pacific. This paper, however, deals only with Assam, and its purpose is to give a brief account of the megalithic work existing there and thus to throw some light, perhaps, on the purposes and methods which may have been responsible for similar work in the prehistoric past of other countries.

The area in which the erection of monoliths still continues in Assam is now limited to two districts and in one of them already, within living memory, it has almost ceased. Both these districts are hill countries which have escaped the influence of the Hindu and Muhammedan religions which have so changed the culture of the plains, but the same megalithic culture was once more widely spread and has left traces in the plains with which it will be most convenient to deal first.

The ancient Hindu temples of Assam were mostly megalithic in structure and probably imported into a newly acquired Hinduism traditions of a megalithic fertility cult that preceded it. Thus the ancient temple at Kamākhya which preceded the existing one, built, probably after an earthquake, with fragments of the old, was obviously built of enormous blocks, the stone vase which crowned the dome being in a single piece of stone 12 feet in circumference. Another such temple near Gauhati was the one which had for the centre of its dome a single stone of which the remaining portion is 7 ft. 5 ins. by 7 ft. 9 ins. in diameter and from one to two and a half feet thick, carved with a lotus flower six feet in diameter. Part of the monolithic doorway also survives ; it was 6 ft. 6 ins. square 2 ft. 1 in. deep and 11 ins. broad. Another such temple was that at Numaligarh, and of the same period

would be the great bridge of unmortared stone called *Sil Hāko* in Kamrup, over 140 feet long and with more than 20 passages for water spanned by flat slabs 6 ft. 9 ins. in length and 10 inches thick. This method of building bridges is seen again in those built, probably at a very much later date, by the Synteng princes of the Jaintia hills, bridges in which the spans consisted of single slabs of stone sometimes over 20 feet in length, 8 feet in breadth and 2 feet in thickness. These latter bridges were contemporary with megalithic work in rough stone, consisting of menhirs and dolmens to which reference will be made later. These bridges were compared by ANTIQUITY to the 'Cyclopean bridges' on Dartmoor.

None of this stone-work, of course, predates the Iron Age, and the same statement must apply to the very different type of megalith which is known at two places in Assam and is otherwise unique. These consist of the site at Dimapur, first described by Godwin-Austen in 1874, and the later and less known site at Kasomari–Pathar near Jamuguri. Both sites are at the foot of the Naga Hills, and consist of rows of carved monoliths. The principal group at Dimapur consists of four rows of monoliths, two being of carved pillar stones described as 'chessmen' and the other two of Y-shaped stones carved out of a single piece and covered with ornament. (Plates I-III). The stones are placed so that those in one row fall opposite the spaces in the row in front. The rows are all aligned from north to south parallel to the river Dhansiri to the east. In addition to the main group there are two smaller ones, one of which is decidedly older than the main group and has adjacent to it a single pillar of exceptional size 16 ft. 8 ins. high and 23 ft. in circumference. The other 'chessmen' pillars run from 15 ft. in height and 6 ft. in diameter downwards and the Y stones have arms of 14 ft. or less in length. The designs carved on the stones include naturalistic representations of elephants, barking-deer, peacocks and other birds and animals, and conventional lotus patterns, while the 'chessmen' pillars bear among other patterns an irregular Maltese cross (probably derived from a flying hornbill) and a leaf-shaped weapon very suggestive of the bronze Hallstatt sword. These remains at Dimapur were in the earliest historical times occupied by a Kachari kingdom, but the Mikirs also claim to have erected them and there is some evidence to suggest that the historic Kachari dynasty replaced a pre-existing race. The tradition is that the site was a market place, a tradition which fits well with the still surviving use as such of the great alignments at Nartiang in the Jaintia Hills. The stones themselves

are undoubtedly phallic, and in the Naga Hills the Angami Nagas of Kohima, which village is connected with Dimapur by a rather obscene legend of its rain-making family, still make wooden objects consisting of a straight post and a forked post, which are definitely stated to represent the generative organs of the two sexes. When a man has attained such prosperity that he can celebrate the *lisü* (wood-dragging) ceremony, a pair of these posts is made and dragged round the village to infect the whole community with the prosperity of the individual. In the ceremony which succeeds the *lisü* in the ascending scale of 'feasts of merit' two great stones are dragged in and set up as monoliths, these also representing the two sexes, though owing to the material they cannot be carved. Occasionally even in the Naga Hills forked stones, usually water-worn, are found and such stones have also been made use of in the past. It should be mentioned that at Dimapur the stone used is sandstone and must have been brought—pulled no doubt as Naga stones are—from the gorge of the Diphu river ten miles away.

It has been said that the Dimapur monoliths are aligned north and south. The largest group is carved on both sides, or all round, and cannot be said to face one way or the other, but part of the oldest group faces west, the Y pillars being carved on one side only. West also faces the Kasomari group, fronting the river Diyung, and perhaps the real association is with water. The Kasomari monoliths are obviously of much later date than those of Dimapur, the connexion being maintained by a single 'chessman' pillar (fig. 1) isolated from the rest, which are either flat slabs or square pillars. The slabs are carved with lotus patterns, naturalistic animals, and a conventional lion of the same family as Manipuri lions carved in the last century. (Plate IV). The square pillars (fig. 2) also bear the lotus and in one case a four-armed man. The pillars are hollow in the top. These hollows are certainly not mortises (though described as such by the Archaeological Survey). Their purpose might be to hold libations, but was possibly rather to contain the skulls or ashes of the dead. This surmise is based on inference from existing customs to be dealt with later on. Made hollows, also sometimes regarded by earlier writers as mortises, are to be found in the tops of the late Y-shaped stones and perhaps in some of the 'chessmen' pillars at Dimapur.[1] The Kasomari monoliths

[1] The mortise and tenon method is actually used in some cases to fasten together the cylindrical stem and the bulbous top of the chessmen pillars, though the majority are made in one piece. But I cannot think that the holes at the tops of the monoliths, where they occur, were ever intended to serve as mortises.

are surrounded with a moat, and many of them have been incised, subsequently it appears to the erection of the stone, with a bow and arrow, intended, one imagines, to facilitate success in hunting. One stone bears a bow without any arrow. It is curious to note that precisely the same symbol of a bow and arrow is to be seen incised on the menhir called Maen Llwyd, 'the hoar stone', at Cefn Cethin in Llandeilo Fawr in Carmarthenshire.[2]

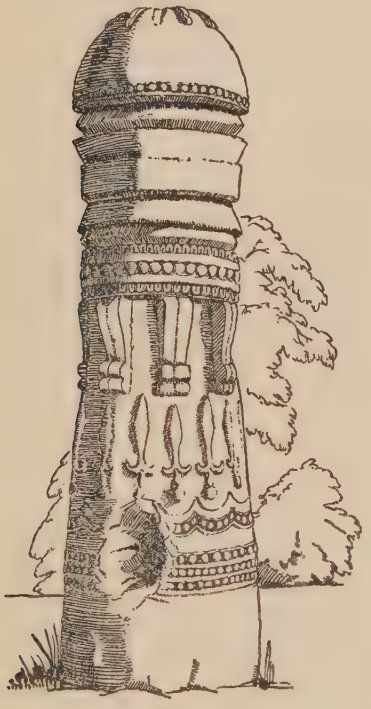


FIG. 1.
'CHESSMAN' PILLAR NEAR JAMUGURI

FIG. 2
SQUARE PILLAR AT JAMUGURI

Earlier than either of the Kasomari and Dimapur groups are some groups of stones recently discovered in the North Cachar Hills, a tract of low lying hill country that links the Naga to the Jaintia and Khasi Hills. These stones were discovered by Mr J. P. Mills in 1928 and no account of them has yet been published. They consist of what may be

[2] For an illustration of this stone see fig. 141 in vol. v of the Royal Commission's *Inventory of the Ancient Monuments in Wales and Monmouthshire: Carmarthenshire.*

described as male and female stones, which are collected into separate groups. The female stones, of which only two groups have been found, appear to be the older. They are the shape of a truncated cone, with a slightly oval base, are hollow inside and stand erect on their bases. Both groups are much worn and broken and even the larger one contains few perfect stones. The biggest measured was 4 ft. 8 ins. high. The male groups are more numerous and in better condition. The biggest is that at Bolasan, containing about 400 stones, pear-shaped and set up slanting with the ' stalk ' end in the ground. The larger ones were about 6 ft. in height and 6 ft. across the flattened top in the centre of which is a hole about 10 inches in diameter and 2 feet or so in depth. Some of the smaller ones which have been entirely covered by the soil show carvings of deer and other animals. What appears from the weathering to be a small group of older stones is differently shaped, being more nearly cylindrical than the very pear-shaped stones that predominate. A small group at Kobak, one stone of which measured 7 feet in length, is similar in shape, and it is to be noticed that one at any rate was carved with ' heads ' such as those used to depict the heads of decapitated foes by Nagas. One or two also had animal carvings. Yet a third group of these stones, near Darebora, consists of 42 pear-shaped stones arranged in lines with a single enormous stone at a small distance. The hollows in these are much greater than in the Bolasan group and in the case of the large separate one a man can stand inside and only his face will show above the edge of the aperture. These stones must be of great age as some are almost completely buried with deposited soil. At Bolasan only the small ones are buried, the larger ones standing clear of the soil except for the bases, much, no doubt, as they stood when set up. Probably the Bolasan group is the latest and shows a modification in the pattern of the stone towards a flattening of the top, and general conventionalization. These stones are in all cases associated with pairs of tanks, which are spoken of by the local Kukis (immigrant in historical times) as ' dancing places ' and the erection of the stones is ascribed locally to Mikirs. Probably they are to be associated with religious cermonial similar to that of the Khasi and the Mundas, in which the ashes of the dead are from time to time collected with ceremony at a clan burial place, each family having its own cist. It may be noticed in this connexion that the Wa sub-tribe, of Shella, till recently used to place the bones or ashes of their dead in wooden posts, and at any rate in the Naga Hills many stone forms have corresponding wooden ones. In the same area as that in which these conical

and pear-shaped stone monuments are found, shouldered celts are of frequent occurrence. These shouldered adzes or hoes are not roughly shouldered like those found in the Naga Hills but are much more finely worked. Some are more highly worked even than the typical Irawady shouldered celt, and instead of being flat with square shoulders are shaped to give the greatest thickness across the middle of the back in a manner very suggestive of the little shouldered iron hoe still made by the Yimtsungr Nagas and called *tafuchi* by Semas.[3]

All this carved stone-work relates to a past of which we have no longer any record, and the megalithic work that survives is almost entirely in rough stone. Howbeit the skull cists of certain Konyak villages form an exception. Most, if not all, Konyak Nagas dispose of the heads of their dead separately after the body is decomposed enough to admit of detaching the head. This detached head is variously disposed of. By some villages it is placed in natural shelves in the cliffs ; others, perhaps for want of convenient cliffs, place them on shelves of built-up stone with a shelter of thatch. Others use pots buried to the rim in the ground, while some place the heads of their chiefs in cairns covered with a flat stone. The skulls of chiefs are in some cases furnished with false noses and eyes. Three villages, however, use receptacles of carved stone. One of them, Kongan, makes a single cist of hollowed sandstone with a flat piece laid over the top. This is perhaps a form which has degenerated from the cists made by the other two. These are phallic in shape, the male ones being carved with patterns which often recall the ' chessman ' monoliths of Dimapur, but the female ones, though often divided at the top, are not of the forked Y-pattern, so typical of Dimapur and of wooden ceremonial posts common in the Naga Hills, but much more naturalistic. These carved cists have a cavity in the side in which the skull is placed, and which is covered with a flat stone kept in place by bamboo pegs, the whole being covered with a conical palm-leaf sheath. The cists are kept in family groups in thick jungle near the village and couples desiring children perform ceremonies over cists of the appropriate sex. Obviously then the cist accommodates a soul or soul material as well as a mere skull. Indeed this follows clearly from the fact that while the body is decomposing a wooden figure is provided as a temporary abode for the soul, the same figure being laid aside when the cist is made and used again for any other persons of the same sex. (Plates V-VII).

[3] *The Sema Nagas*, p. 66.

Except for these skull cists, carving is, it has been noted, very rare in the hills. The stone available, whether in the Naga or in the Khasia and Jaintia Hills, is not suited to carving at all. A few roughly incised menhirs do, however, exist, one at Kigwema[4] in the Naga Hills is roughly cut with patterns that appear to be spear heads but which might have originated in, or might easily develop into, lotus buds such as those at the top of the Kasomari monoliths. Round the edge this stone is indented to form pairs of breasts, a very favourite subject in all Naga woodcarving and one which appears again on the Kasomari stones, but only on the lower parts normally buried, as if the blunter symbolism of the phallic cult had been submerged by Buddhist influence, substituting pairs of open lotus flowers perhaps on the visible part of the stone but none the less retaining the original *motif* where it could not scandalize but would no doubt be equally effective. In Manipur and in the Lushai Hills there are a few incised monoliths, bearing principally representations of animals (suggestive more of Dimapur, this), and Godwin-Austen mentions having seen in the Khasi Hills a monolith carved with the open lotus pattern. Occasionally a Naga menhir is to be found, always an ancient one, which has been deliberately given a phallic shape, and one such is associated with carvings on rock mentioned later on. What is perhaps a substitute for naturalistic carving is, or was, to be seen occasionally in the Khasi Hills in the form of a menhir the top of which was surmounted by a rough ring-stone giving it a sort of knob. This must, I think, have been intended to form a bulbous top, as of the Dimapur ' chessmen ', in a granite too hard to be carved like sandstone with inferior iron implements. It is to be noted that Dalton[5] illustrates, though he makes no textual reference to it, a type of monolith very similar to the Dimapur ' chessman ' as occurring in Chota Nagpur, in company with menhirs and dolmens otherwise closely resembling those of the Khasis and Syntengs. In the North Cachar Hills monoliths on long-deserted sites probably once occupied by Syntengs are occasionally carved with a rough figure of a man and occasionally with a representation of the female genitalia, and the general significance of all this Assam megalithic culture, past and present, is unequivocal. It is to provide a suitable vehicle through which the soul-force of persons living or dead, but particularly the latter, may assist or perhaps constitute the reproductive forces of nature and provide crops and other forms of

[4] *Man*, 1926, 44.

[5] *Rude Stone Monuments in Chutia Nagpur*, J.A.S.B., 1873, pt. 1, no. 2, plate II.

life for the fellow villagers who survive them. This theory of the cycle of life is stated most circumstantially by the Karens of Burma whom the Angami Nagas claim as near cousins and who according to Smeaton[6] likewise claim relationship with the Angamis. They speak of the soul as an entity which pupates as it were on death, the pupa falling to the ground, bursting, entering the growing grain and causing it to burgeon and again entering the bodies of men or animals which eat the grain, passing on to descendants through the seminal fluid.[7] Similarly the Wa of Burma take heads to fertilize the growing crop (with the soul from the head) and the Naga takes heads whenever excess of disease, famine or misfortune indicates a shortage of soul-force in the community. So again the Nagas of Laruri in the Naga Hills are careful to preserve their dead throughout the year, that the partially smoke-dried corpses may be broken up and the soul released for fertilization purposes on the first day of the sowing. Till then the soul is conceived of as roaming in the neighbourhood of the village, and offerings are made to it and a miniature house and utensils provided, but these are no longer required after the sowing ceremony and the disposal of the bones in a pot in the family granary, though a final offering of first fruits is made after the harvest. Another link in the chain is provided by the practice of Ukha and certain other villages of independent Konyak Nagas in making soul-figures of the dead, on which the skull is placed for a time in order that the soul may descend into the figure, The same idea of the wooden figure of the dead as a temporary abode for the soul has already been noticed in connexion with the Wakching cists and certainly is found in the Angami practice of putting up wooden statues for the dead on their cenotaphs, which in some cases have a small erect stone behind to take the place of the statue when it has rotted away. In other villages these are removed and burnt between the harvest and the sowing, while it is said that they ought not to be kept after the first year, *i.e.* after the first harvest, but if they should be left up till the following sowing they must be retained throughout that year too, till the crop has again been harvested. Many villages, however, do not use these wooden statues but erect monoliths for the dead, sometimes actually in the rice fields, also placing a small water-worn erect stone at the top of the grave, which is definitely said to be the dead man and on which drink is poured

[6] *The Loyal Karens of Burma*, p. 68. The Angamis likewise talk of the part of their tribe called Kerennoma, *i.e.* children of the Keren, left behind them to the eastward on their way to Assam.

[7] Marshall, *Karen People of Burma*, pp. 222, 230.

for the soul. These villages do not erect stones for the soul-force of the living, but those who use wooden statues for the dead put up pairs of stones representing the male and the female as has been already stated.

The Nzemi (Kachha Naga), like the Khasi, use a menhir to represent the male and a recumbent slab to represent the female, but they do not, as the Khasi do, use dolmen cists for the bones of the dead. There are large groups of menhirs, probably representing clan burial-places, in the Khasi Hills, and one such, of enormous stones, occurs at Gwilong (fig. 3) or Togwema in the Nzemi country. This group has, erroneously as I consider, been described as a 'circle', and the plan included in Col. Hodson's book on *The Naga Tribes of Manipur*, but not made by the author himself, is misleading. It consists of a large number of menhirs, some of great size, aligned along the path of approach and becoming a confused group of stones at all angles, many of them now thrown down, and containing an irregular open space where the young men wrestle in honour of the dead on certain occasions. Water is conducted by a special channel into a normally dry excavation alongside the stones, in which the young men disport themselves. This association between monoliths and water has in the past been very frequent, but is rapidly disappearing, as menhirs are now erected without any regard for the presence of water. Old ones of note, however, are associated with artificial excavations which hold or were intended to hold water, while another symptom of obviously the same fertility cult is to be seen in the Rengma Naga practice of digging a receptacle for water on graves in order that the crops of the deceased's heirs may be fertile, and in the practice of certain Angami clans who make rain by pouring water on the grave of the last member of the clan to die.

Menhirs are also associated with the vital essence of enemies as well as of deceased clansmen. The association of head-hunting with the crop by the Wa of Burma has been mentioned, but the Konyak Nagas of certain villages, when they take a head, hoist it on a bamboo attached to a menhir in order to benefit the crop (the hoisting is doubtless to make the rice grow high). In other villages (*e.g.* Yungya) the head is exposed on a flat stone at the foot of a palpably phallic menhir, or on a stone table (as at Chi) before a mound on which a small stone is erected for every head brought in, an *euphorbia*, whose milk-like juice seems also to have fertility associations like that of the *ficus*,[8] being grown on the

[8] Frazer, *Golden Bough*, II, 313, 316, 317 ; VIII, 113 ; *Folk Lore in the Old Testament*, III, 316.

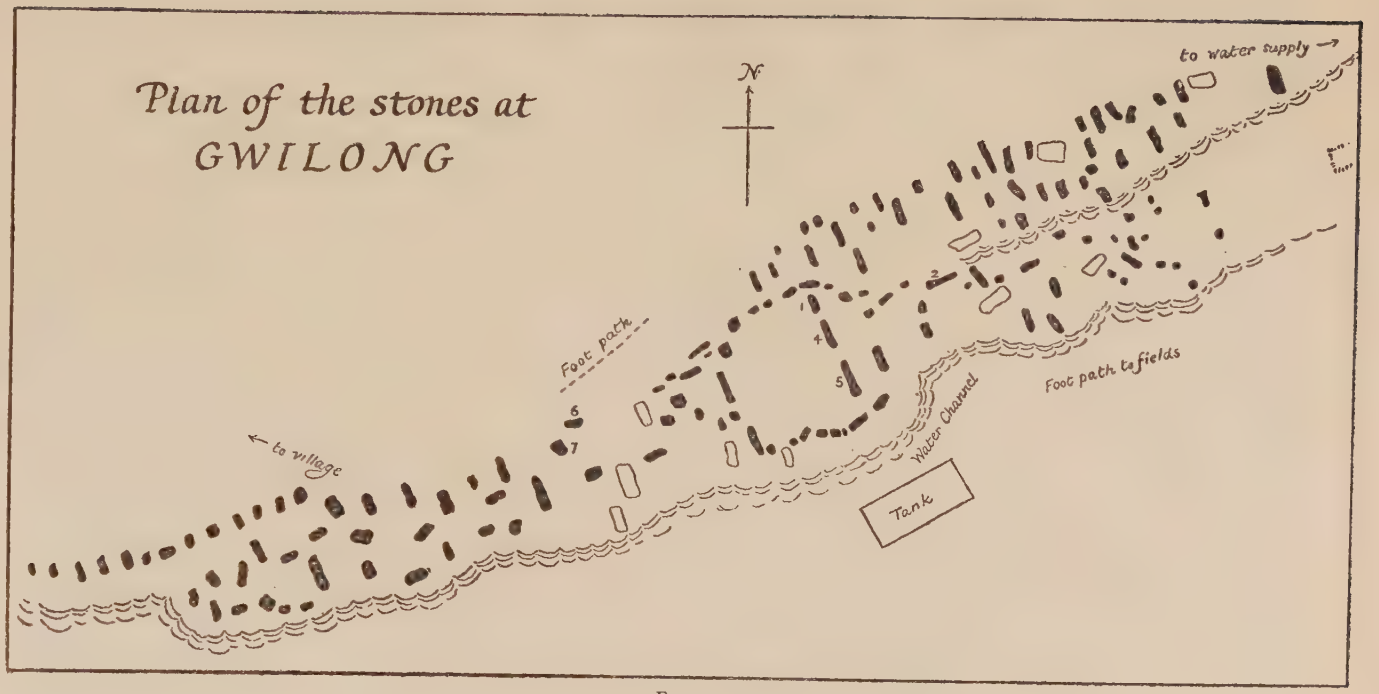

Plan of the stones at
GWILONG
N
to water supply
Foot path
to village
Water Channel
Foot path to fields
Tank
1
2
3
4
5
6
7

FIG. 3

top of the mound. The Tangkhuls expose the heads of their enemies on a pile of stones, and the Angamis place them on the sacred stone of the village, while the Lhotas hang them on the sacred tree of the village, a *ficus*, among the roots of which are kept the round water-worn *oha* stones which are the repositories of the 'luck', the *mana* of the community and which have in many cases accompanied the community in its wanderings in the remote past.[9]

Apropos of the discovery of 'Woodhenge' it is worth noting that all these monolithic erections have their wooden counterpart. The forked stones of Dimapur are paralleled by the forked wooden posts of the Sema and other Naga tribes (plate VIII), as the 'chessmen' pillars and as menhirs generally are by wooden phallic pillars, as of the Ao Nagas; while the Angami Nagas use a pair of wooden emblems corresponding to the stones of Dimapur. Even a wooden menhir has been known to occur, though no doubt this was a degenerate, since the stone menhir must have started as a post and not a slab. Perhaps the wooden coffin may be taken to correspond to the stone cist, and certainly the pots used for the disposal of Konyak heads in many villages are to be correlated with the stone skull cists, and in some villages, *e.g.*, Shiong, an inverted pot is inserted in the mouth of the pot that contains the skull, the latter being half buried and the pot forming a sort of dome over the skull inside.

Stone work is not confined to menhirs and dolmens of course. Circles are constructed in honour of the distinguished dead. Those in the Sema tribe consist of flat stones erected to enclose a space of some yards in diameter, sometimes with a solitary menhir outside the circle (plate IX). The Nzemi on the other hand use square blocks and build a circle or rectangle about a foot-path, leaving gaps for the entrance and exit of passers-by—this also in honour of the distinguished dead. The Angami make solid cenotaphs and graves of stone-walling filled in with earth, circular or rectangular according to whether the deceased has or has not performed feats of merit. The circular constructions resemble very closely the circular stone tumuli of southern India,[10] of northern Africa[11] and of Etruscan graves. The Lhotas bury their dead in vaults in their sandstone village sites, covering the low entrance which runs the length of the vault with fitted sandstone

[9] Mills, *The Lhota Nagas*, 166 sqq.
[10] Fergusson, *Rude Stone Monuments*, p. 472.
[11] Ibid. 398.

slabs. Some of the Nzemi build loose stone pyramidical cairns in honour of their dead, usually associating them with water, and I have seen a similar pyramidical structure built by a Synteng in the Jaintia Hills in front of his house. Great forts of stone, terraced and pyramidical, are built by the Angami as clan strong-holds, usually over the spot where the ancestors of the clan and founders of the village are buried. They are used as strongholds in inter-clan riots and three of the finest in existence were constructed as late as 1923. These *Dahu* and similar constructions are built by the method alleged to have been used by the Picts (*vide* MacRitchie, *Testimony of Tradition*, pp. 66 sq.) of forming long lines to a quarry, or river bed, along which stone after stone is passed from hand to hand. Circular stone platforms with stone blocks round the edge as seats are made for clan ceremonies.

Alignments of menhirs are frequent and it is to be noted that they are nearly always along a path. In the case of some Synteng erections, as perhaps at Dimapur, the alignment is associated with a market, but generally they line the paths which approach a village or some other frequented place. (Plate x). The association again appears to be with the souls of the dead, since all the cult of the dead is associated with the paths to the village by which the soul leaves, and no doubt returns to, its earthly habitation. Offerings for the dead are placed along paths, sometimes in the direction from which the village originally came, and in the Ao tribe the dead themselves are exposed along the paths though there seems to be no such origin association in their case. Rock carvings are rare—almost absent, but one very naturalistically carved or touched-up menhir in the Lyengmai village of Intuma is associated with carvings representing the deceased, his wives, children and mistresses, the heads he took and the animals he slew, the rainbow by which probably his soul was to ascend to heaven (or possibly to associate it with the fertilizing rain), and a very conspicious spiral pattern tentatively stated to represent perhaps a great snake, but most uncommonly suggestive of certain patterns associated with megalithic work in Europe.

Some of the menhirs erected in Assam are of very great size. The Dimapur monoliths were estimated to weigh about 20 tons each, and one at any rate must be a good deal more. Many Naga monoliths must weigh as much, and even bigger are some of the Synteng stones, one of which, at Nartiang, measures 23 feet in height above ground, while Col. Gurdon mentions a Khasi table stone at Laitlyngkot measuring 28 ft. by 13½ ft. by 1 ft. 8 ins. These are not as big as many of those in Europe,

but they will certainly compare with them to the extent that the methods by which the Assam megaliths are transported and erected would serve equally well for those of Carnac, and to say that how such monuments were put up is a mystery, as has been recently asserted,[12] is inconsistent with our knowledge. The monolith to be erected by Nagas is quarried so that when completely detached from the rock it lies horizontally upon one edge. Usually it is a natural slab or boulder lying near, or on, the surface of the ground, but occasionally it is cut from the rock where the strata are such that detachment is easy. This facilitates the tipping of the monolith on to the wooden sledge on which it is to be dragged to the site of erection. This sledge is made either V-shaped, from a fork of a tree, or in two pieces, the sides, which serve as runners, being joined in both cases with cross pieces of stout wood (plate XI). The sledge is laid as close as possible alongside the stone with its nose adjacent to the lighter end of the stone, and it is held in place by men pushing against it with poles while the stone is gently prized up and tilted on to it with wooden levers. Once on the sledge the position of the stone is shifted by means of wooden levers till its weight is distributed as evenly as possible, and it is then lashed very tightly to the sledge with ropes of creepers (plate XII). Similar ropes are used for pulling the sledge and stone to the desired site and enough ropes are provided to enable large numbers of men to pull (as many as 100 pullers may work on one rope), and they have spare men to relieve them or assist when there is a special strain (plate XIII). At the desired site a small hole is dug and the sledge arranged so that the heavier end of the stone is adjacent to the hole. To this end of the stone long poles made from saplings are applied by parties pushing with all their weight to prevent the stone's slipping prematurely into the hole. This pressure is maintained during the raising of the stone from the horizontal to the vertical, which is effected by introducing under the top end, away from the hole, wedges of wood of very gradually increasing length. To introduce the wedges wooden levers are used which raise the end of the stone very slightly and admit of sections of tree being inserted, fresh sections being slightly longer than the previous ones, which are pushed down nearer to the base of the stone to make room for them. When the end of the stone has been lifted well up from the ground in this way, it is harnessed with a noose to creeper-ropes which are pulled on from beyond the base of the stone, the men near its foot

[12] ANTIQUITY, September 1928, p. 348 sq.

PLATE I

MONOLITH OF MAIN GROUP, DIMAPUR

facing p. 336

PLATE II

MONOLITHS OF MAIN GROUP, DIMAPUR

PLATE III

MAIN GROUP OF MONOLITHS AT DIMAPUR

PLATE IV

MENHIR, JAMUGURI

PLATE V

BURIAL PLACE OF KONYAK CHIEF'S SKULL. OTHER POTS CONTAIN OFFERINGS, AND THE WOODEN SEAT IS FOR THE SOUL TO SIT UPON

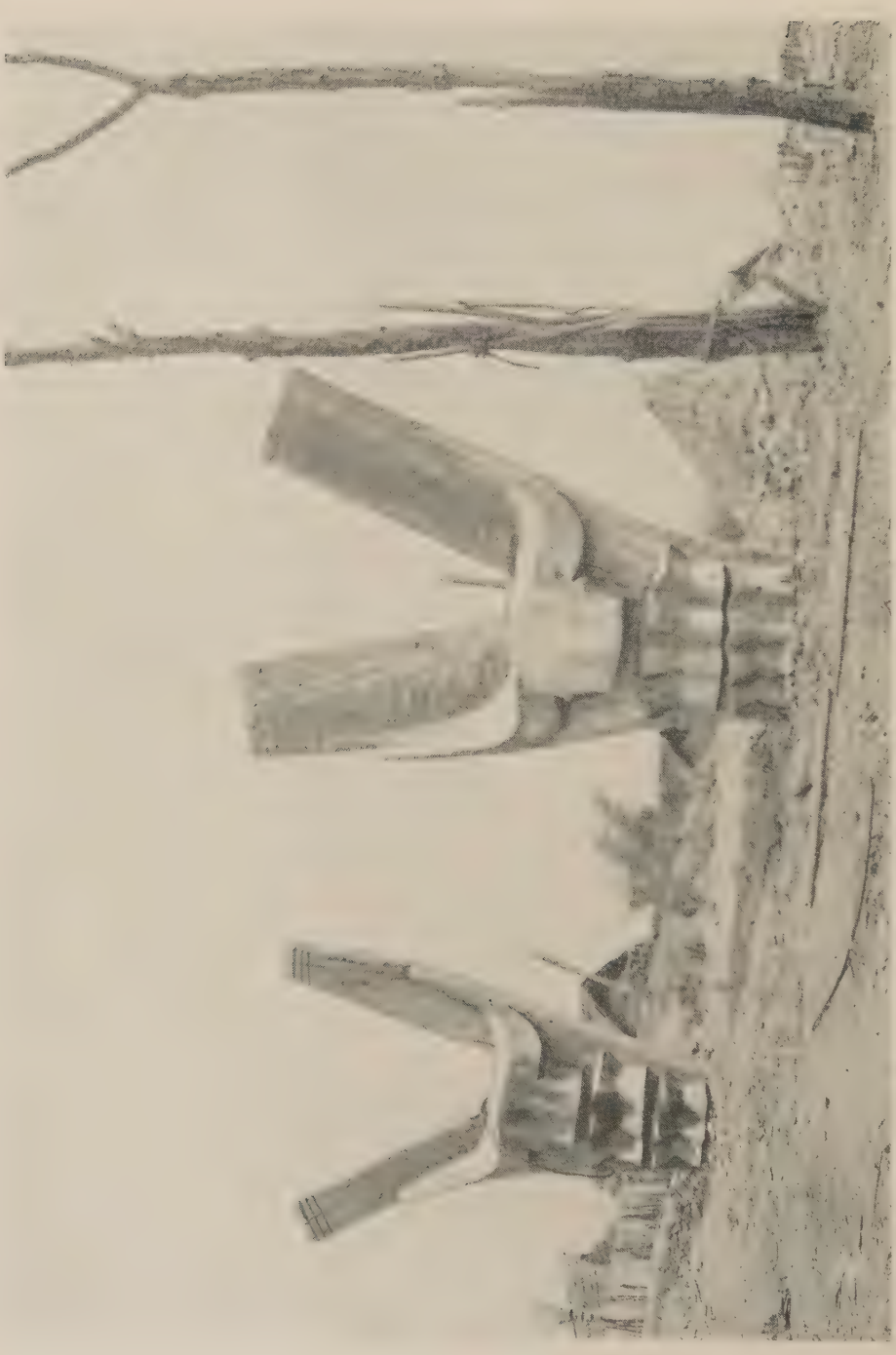
PLATE VI

SKULL-CISTS OF CHIEFS OF WAKCHING (KONYAK NAGA)

PLATE VII

SKULL-BOX AND CONICAL THATCHED SKULL-COVER

PLATE VIII



FORKED WOODEN POSTS, SEMA NAGAS

PLATE IX

SEMA STONE MEMORIAL CIRCLE, WITH MENHIR OUTSIDE

PLATE X

MENHIRS ALIGNED ALONG PATH THROUGH RICE-FIELDS, RAZAMA VILLAGE

PLATE XI

WOODEN SLEDGE FOR TRANSPORTING MONOLITH

PLATE XIV

MONOLITH FASTENED TO A FRAME FOR TRANSPORT BY LHOTA NAGAS

PLATE XV

MENHIR AND DOLMEN AT KEZAKENOMA

PLATE XVI

THE CHIEF OF MÔN BESIDE MENHIR. PARASITIC GROWTHS (GENERALLY ORCHIDS) ARE ENCOURAGED TO GROW ON THE TOPS OF THESE STONES

helping those who are pushing poles against it by placing a foot on the base of the stone. When the stone reaches an angle of about 45° it is allowed to slip off the end of the sledge into the hole, and the party pulling on the noose raise the top end to any upright position, others pushing with their hands from behind. As the stone touches the vertical all rush in in a 'scrum' from all sides, those nearest the stone steadying it at the top with their hands and those behind supporting by their weight those who are pushing directly on the stone. While it is held in this position by the weight of the press round it the bottom is wedged underneath to make it stand steady on its own base, after which the hole is packed and the rammed end eventually paved with flat stones at the top.

In the Lhota tribe another method of transporting smaller monoliths is used, particularly where the ground is broken and rough. A huge rectangular framework of poles crossing at right angles is made, as rigid as possible, and the stone is lashed to the centre of it (plate XIV). The men raise the framework and carry the stone to the site, each man being in the centre of a square made by the crossing poles of the frame except the outer lines where squares are open on one side.[13] It is easy for sixty men or so to combine in carrying a stone in this way, though of course the method does not admit of the transport of nearly such large stones as can be moved by a sledge with ropes.

Although an eastward aspect for the erected stone is often favoured, it is not universal, and there appears to be nothing to connect these megaliths with sun-worship. The absence of sun-worship here naturally suggests speculation as to whether complete confidence can be placed in the commonly accepted supposition that the megaliths of Great Britain and of Brittany were connected with a sun-cult. The *allées couvertes* and alignments of Carnac do not face east, but north-east, south-east or north, and their orientation might refer to the direction from which migration took place, or, in the case of alignments, might be determined by pre-existing paths, as are some alignments of the Naga Hills. The occurrence of solstitial stones is not necessarily destructive of this view, since if the dead were associated with the crop and the reproductive powers of nature generally it would not be unnatural to find in their monuments a means of determining the seasons on which the agricultural year depended. The Cherama clan of Kohima village in the Naga Hills determine the calendar of their agricultural year by

[13] *The Angami Nagas*, p. 362.

careful observation of the sun's rising along a distant range of jagged peaks which enables them to note the solstices. A group of menhirs commemorating the dead might have been made to serve the same purpose, and when the solstitial spot became known it would no doubt be marked. There is other evidence to suggest that at any rate Carnac was associated with a fertility cult. The wheat design under the *Table des Marchands* associates it with the crop and the ornamentation of the stones in the gallery of Gavr' Inis has been interpreted as a conventionalization of the same theme. Reinach has shown that head-hunting was practised in ancient Gaul, and, as pointed out by Gomme,[14] it seems to have survived in Great Britain to the Middle Ages, while the pre-christian fertility cult practised by the witches survived to a much later date. Traces of phallic worship go back to the Old Stone Age, and it is perhaps not unreasonable to deduce from the mortuary, phallic and fertility associations of the menhirs and dolmens of Assam, that the not dissimilar monuments of Europe had similar associations to which the sun was purely incidental.

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Original authorities on the megalithic work of Assam in approximately chronological order :—

Hannay.—Ancient temples in the vicinity of Suddyah. *J.A.S.B.* June 1848.
— The *Sil Háko* or stone bridge in Zillah Kamrup. *J.A.S.B.* iv of 1851.
Dalton.—Notes on Assam Temple Ruins. *J.A.S.B.* i of 1855.
Barron.—Note on Stone Implements from the Naga Hills. *J.A.I.* i, app. vii.
Godwin-Austen.—Rude Stone Monuments of Certain Naga Tribes. *J.A.I.* iv.
— On the Ruins at Dimapur, *J.A.S.B.* i of 1874.
Bloch.—Annual Report of the Archaeological Survey of India, Bengal Circle, 1902–03, and 1905.
Gurdon.—The Khasis. 1914.
Hutton.—Carved Stone Monoliths at Dimapur. *J.R.A.I.* lii.
— Meaning and Method of Erection of Monoliths by Naga Tribes. *J.R.A.I.* lii.
— Carved Monoliths at Jamuguri. *J.R.A.I.* liii.
— Carved Stones in the Dayang Valley. *J.A.S.B.* xx.
— Use of Stone in the Naga Hills. *J.R.A.I.* lvi.
— Disposal of the Dead at Wakching. *Man*, 1927, 44.
— Megalithic work in the Jaintia Hills. *J.A.S.B.* xxii.
— Significance of Headhunting in Assam. *J.R.A.I.* lviii.
— Two Tours east of the Naga Hills. *M.A.S.B.* xi, no. 1.

[*J.A.S.B.*=Journal of the Asiatic Society of Bengal; *M.A.S.B.*=Memoirs of the same. *J.A.I.* and *J.R.A.I.*=Journal of the Royal Anthropological Institute. Most of the articles in the above list are illustrated].

[14] *Ethnology in Folklore*, 144 sqq., 158.

Notes and News

THE BERLIN CONGRESS

Mr R. G. Collingwood sends the following note :—

On the ancient feast of the Palilia, the date on which Rome, according to tradition, was founded, the *Istituto di Corrispondenza Archeologica* was inaugurated by a group of Italians and Germans in the year 1829. From the first a predominantly German institution, it became by degrees more and more exclusively so, until, in the year 1886, it took its present form as the Archaeological Institute of the German Empire. This body celebrated its centenary on 21 April of the present year. On the morning of that day, delegates from German and foreign learned societies were received, and presented addresses of congratulation; in the evening, a meeting was held in the Reichstag building, at which speeches were made by representatives of foreign Governments. On the following day a reception was held in the new Pergamon Museum, where the Pergamene sculptures have been reconstructed and can be seen under conditions that almost deserve to be called ideal. In the afternoon began a series of meetings at which, for the next four days, archaeologists of almost all countries lectured on the work recently done by themselves and their compatriots. There were altogether about 75 of these lectures, divided into four sections—Rome, Greece, prehistoric Europe, and Asia and Africa. In the evenings there were meetings of a more general kind. On 22 April the entire company, a thousand strong, were entertained at dinner in the Marble Hall of the Zoological Gardens. Speeches were made, but whether owing to the shape of the hall or to the difficulty of securing silence in so large and various a gathering, they were not heard. This, however, did not damp the spirits of the diners. The next evening, the guests of the Institute were invited to attend a meeting of the recently-founded Gesellschaft für Antike Kultur, at which its president, Professor Werner Jaeger, gave an address on the place of ancient studies in the life of the modern world. Professor Jaeger is the most brilliant and distinguished of the younger generation of German scholars, and his speech was a thing which will not be forgotten by those who heard it : at once a

reasoned exposition of the meaning and purpose of historical studies, an analysis of spiritual conditions in the post-war world, and an impassioned plea for the building-up of a new world on the ruins of the old, in the light of the past and its lessons. If any member of the congress wondered, in an idle moment, why an entire civilization had been bitten with this morbid craving to scratch the earth and collect the bones of its predecessors, and why the disease had gone the length of herding its victims together, a thousand at a time, at great trouble and expense, for the mutual discussion of their symptoms, Professor Jaeger's address gave the answer to his doubts.

PRIMITIVE CARTS

By a happy chance we are able to publish together two photographs of primitive solid-wheeled carts, one from Sardinia and the other from Spain, where they are still in use today. They are the result of holiday snapshots taken by two of our readers to whom we are indebted for permission to use them. (Plates I–II).

Interest in the subject was revived by Mr Woolley's discovery at Ur of a limestone bas-relief showing just such a wheeled cart.* This is the oldest known instance of the use of wheeled vehicles, unless the chariots themselves, found later in the Royal Tombs at Ur and also at Kish, are earlier. These chariots also had solid wheels. Though solid, that is to say spokeless, the wheels were not made in one piece. The component parts were clamped together, a method also adopted in our Sardinian example, where we presume the clamps are of iron. In the Spanish example the wheel consists of four parts, and the same mechanical principles are used as at Ur. An economy of weight is effected by boring two large holes.

Essentially, carts of this kind are little more than logs or planks on moving rollers; the prototype of the wheel was obviously the tree-trunk. Describing the Spanish example Mr W. J. Hemp, F.S.A., says :—' It consists of a tapering platform of which the smaller end forms the pole (whose end can be seen projecting between the heads of the ox and cow). The carts go up and down the steep paved streets of Oporto, emitting groans which are a characteristic of the country. In some places a brake is applied by straining a pole against a round projecting iron hub (absent in the illustration). The carts are in

* See ANTIQUARIES JOURNAL, VIII, plate 5, and ANTIQUITY, II, plate opposite p. 56.

PLATE I

SOLID WHEELED CART—MACOMER—SARDINIA

Ph. C. Suffern

facing p. 340

SOLID-WHEELED CART, NUESTRA SENORA DEL PUENTE, NEAR LA PUEBLA, PROVINCE OF ZAMORA, SPAIN

Ph. W. J. Hemp, 1929

general use throughout the north-west corner of the peninsula. I saw them in Oporto, Braganza, Astorga, Vigo and Santiago '.

As usual on any Spanish subject, Richard Ford's words are worth quoting ; in his *Gatherings from Spain* he observes of ' the carts and other machines of Spanish rural locomotion and husbandry ' that ' when not Oriental they are Roman ; rude in form and material, they are always odd, picturesque, and inconvenient. The peasant, for the most part, scratches the earth with a plough modelled after that invented by Triptolemus, beats out his corn as described by Homer, and carries his harvest home in strict obedience to the rules in the Georgics '.

' The carts in the north-west provinces are the unchanged *plaustra*, with solid wheels, the Roman *tympana* which consist of mere circles of wood, without spokes or axles, much like mill-stones or Parmesan cheeses, and precisely such as the old Egyptians used, as is seen in hieroglyphics, and no doubt much resembling those sent by Joseph for his father, which are still used by the Affghans and other unadvanced coachmakers. The whole wheel turns round together with a piteous creaking ; the drivers, whose leathern ears are as blunt as their edgeless teeth, delight in this excruciating *Chirrio*, Arabicè *charrar*, to make a *noise*, which they call music and delight in, because it is cheap and plays to them of itself ; they, moreover, think it frightens wolves, bears, and the devil himself, as Don Quixote says, which it well may, for the wheel of Ixion, although damned in hell, never whined more piteously. The doleful sounds, however, serve like our waggoners' lively bells, as warnings to other drivers, who, in narrow paths and gorges of rocks, where two carriages cannot pass, have this notice given them, and draw aside until the coast is clear '.

In sending us the Sardinian photograph, Mr C. Suffern suggests that man-hauled carts like this may well have been responsible for the Maltese cart-ruts. Mr Suffern has observed similar ruts in Sardinia. This would explain why there is no worn central track, such as must in time have been produced by the hoofs of draught animals.

He also draws attention to a bronze statuette illustrated by Perrot and Chipiez (*Histoire de l'Art, Sardinia*, fig. 57), who attribute it to the *nuraghi* period. It represents a soldier carrying a long pole or chariot-shaft, with a pair of wheels at the upper end ; whilst about the middle a basket is kept in place by a hook. There is certainly a striking resemblance to the cart figured, with its basket-like body of plaited straw. (The photograph was taken in the Macomer district in 1924).

These two primitive survivals from so near home are of great interest, and we wish to thank the owners of the photographs for allowing us to publish them and to use their notes in compiling the above description.

DESERT MARKINGS NEAR UR

Amongst the negatives of a large mosaic of the district round Ur, is one showing curious parallel marks. We reproduce this (plate III) with the object rather of eliciting information than of giving it. The exact position may be seen on the mosaic itself, which is now with the Ur finds on exhibition at the British Museum.

The marks may well be old irrigation channels ; but if so they seem to have a different appearance from those in use in Iraq in medieval and modern times.

THE ROUND TOWERS OF MOAB

While staying recently at Amman, the capital of Transjordan, we were taken by our host, Group Captain Rees, V.C., to see some megalithic remains on the plateau lying to the south-west of the town. They consist of two dolmens, two round towers and innumerable walls or banks of stone. On seeing the round towers we were at once struck by their very close resemblance to the talayots of Majorca. At the time we had forgotten Dr Duncan Mackenzie's account* of the Transjordanian remains, which we had not looked at for many years ; and on re-reading it we were interested to find that the same resemblance had also struck the earlier observer. The similarity, however, is so remarkable that no one who has seen both can fail to notice it.

The dolmens differ in no essential points from others in the huge region where they occur—a region which extends from Ireland to India and from Sweden to North Africa. The one visible in the photograph (in the bottom left-hand corner of plate IV) occurs close to the ruins of a round tower of megalithic construction (Dr Mackenzie's plate II) and was doubtless, as he suggests, the tomb of some chief who lived there ; or possibly a communal burial-place of the inhabitants. The close association of dolmen and tower is well brought out in the photograph, taken obliquely from the air ; and this association is a feature of the

* *Megalithic monuments of Rabboth Ammon at Amman*, by Duncan Mackenzie, PH.D. Palestine Exploration Fund Annual, 1911, pp. 1–40, plates I–VI.

nuraghi of Sardinia. The *nuraghi*, too, are megalithic towers, though their special structural features have not yet been proved to occur in the towers of Transjordan.

Attached to the Transjordan towers are the ruins of rectangular rooms. These are not visible on the photograph, but were carefully planned by the late Mr F. G. Newton, Dr Mackenzie's companion on the occasion of their visit to Amman. The whole complex of structures was primarily defensive, and in general character (though not of course in details) may be compared with our Norman castles, with their keep and bailey. Dr Mackenzie further observed a strategic arrangement with relation to the perennial streams at Amman, the City of Waters, the Rabboth Ammon of the Bible. The towers are only a short distance from the town itself, which may be seen in the distance on plate v. The view gives also a good general idea of the rolling uplands of Moab ; and it shows how much cultivation there is in this, at first sight, barren region. The whole area is seen, moreover, to be divided up by huge banks of stone bounding the fields. These are essentially the same as some of the prehistoric field-boundaries in the stonier parts of England and Wales ;† they represent partly the ruined field-walls, partly the stones and boulders removed, as obstructions to the plough, from the field itself. Of what age they are, who can say ? The area is still cultivated, but, though doubtless there have been many changes, they may go back to the remote ' megalithic ' times, before the Canaanites, and long before the Children of Israel.

In these towers and dolmens, with their far-flung resemblances, we have yet another suggestion of a remote cultural community extending over large regions of the ancient world. A direct connexion between, say, Majorca and Moab is of course very unlikely ; but some ancestral community of culture there must surely be. If this be ruled out as too bold an hypothesis, what explanation can we give of another striking resemblance—that between the rock-cut tombs of the Mediterranean region ? ‡ Like causes produce like effects, and the resemblances may, of course, be accidental. They are none the less striking. One would like to know more of the habitations of dolmen-builders in other regions. We hope we may be able to publish something about this later.

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† Compare Dr Raistrick's article in the last number of ANTIQUITY.

‡ See ANTIQUITY, II, 214, 215 and III, 222.

UNKNOWN LINCOLNSHIRE

Prehistoric and Roman Lincolnshire are both awaiting discovery. No county has been more neglected and few are so promising. Though now mainly under plough, there are yet visible remains of the first importance which have never been investigated ; some have not been described since Abraham de la Pryme whose 17th century diary contains so much useful information (published by the Surtees Society, vol. 54, 1870). Stukeley was, we believe, the last, as well as the first, to set down an adequate account of the Roman walls of Caistor-on-the-Wolds, a fragment of which still survives. Mr C. W. Phillips, who visited Caistor recently at our suggestion, thus describes them :—' The remains are on the south side of the churchyard, and they consist of the relics of a piece of curtain wall, and of a bastion. The line of the wall is occupied at this point by a row of cottages, and the bastion, which is not on a corner, is at present built into some outhouses at the western end of this range of houses. It still stands some nine or ten feet above the present surface, is solid, and is practically semicircular in plan. It is built very roughly of large pieces of the local stone, and I saw no vestige of tile or brick. West of the bastion for some thirty yards there are the much overgrown and totally ruined vestiges of the curtain wall. The south boundary of the churchyard is the terrace formed by the wreckage of this wall. The bastion has been a good deal damaged round its base, but seems in no real danger because much of it is shielded by the hovel built round it '.

Mr Phillips also describes a long barrow, at Burgh Top. It stands beside the old road called High Street, the main artery of the Wolds from time immemorial. Some years ago we noted three obvious long barrows on the 6-inch Ordnance map (near Claxby, Alford) ; but this one at Burgh Top is the first to be actually discovered on the ground.

Lincolnshire is now being partially revised for the Ordnance Survey large-scale maps ; so that it is a good opportunity for residents to notify us of any ancient sites that are omitted. There must be a very large number.

AN IMPORTANT BONE IMPLEMENT FROM CHEDDAR

Dr R. C. C. Clay sends us the following communication :—

One of the most important archaeological finds in recent years is the discovery of a second example of the so-called ' bâtons-de-commandement ' in Gough's cave, Cheddar. The two specimens are the only

known examples from the British Isles. The first specimen, found in 1903, has been described in the *Journ. Roy. Anthrop. Inst.* XLIV, 245. The second specimen, here illustrated, was found by Mr R. F. Parry in 1927 in his excavations at the mouth of the cave. It was resting on gravel in the sand, close to the north wall : that is to say, in the deepest implementiferous stratum; and was associated with several flint implements of undoubted Magdalenian facies. The fact that it was found in two fragments, one large, the other small, far apart, testifies to the extreme carefulness that Mr Parry exercised in his work. (Plate VI).

The specimen is made from an antler of reindeer, one face being slightly rounded, the other almost flat. The rounded face is decorated with six bands of linear incisions, while the flat is plain except for a single similar band in the middle. The perforation is oval, inclined at an angle to the shaft, and bears on its lower lip on the flat side and on its upper lip on the rounded side well marked grooves which have evidently been cut with a flint implement.

The specimen previously found is more fragmentary. It is decorated with a band of incised lines that wind spirally round the shaft. Miss Garrod, in *The Upper Palaeolithic Age in Britain*, states that ' it is not very typical, and might be either Aurignacian or Magdalenian '. It was found in close proximity to some skulls which Professors Seligman and Parsons described as differing from the Cromagnon (Aurignacian), and showing a greater similarity to skulls of the early Neolithic period, although displaying a general resemblance to the Chancelade (Magdalenian) type.

Many theories have been advanced as to the uses to which these mysterious objects have been put. They have been commonly found on the Continent in Magdalenian deposits, and a few specimens in Aurignacian and Solutrean ' floors '. The earlier have been plainer, and the later (Magdalenian) usually decorated with representations of animals or more simple linear and curved designs. Obermaier states that it is not impossible that the earlier forms may have had some practical use, but that later, as the types became more delicate, they seem to have been exclusively ' sacred '. The following are some of the uses suggested for them :—handles of slings, maces, tent pegs, dress fasteners, cheek-pieces of horse bits, instruments for dressing skins, ceremonial or magic staves, shaft or arrow straighteners. Cartailhac and Reinach considered them to be magic staves similar to the stone ' clavas cefalomorfas ' of Chile and Argentina, and Obermaier inclines

to this view. Déchelette called attention to the small proportion of complete specimens, the majority being broken at one extremity. This suggests that they were employed as tools rather than as symbols. The theory most widely accepted at the present day is that they were instruments for straightening the shafts of arrows. This theory is strengthened by the fact that modern Eskimos employ an arrow-straightener analogous to the so-called ' baton ' (see fig. 227 British Museum Handbook to the Ethnographical Collections). But the Eskimo straightened his shaft by damping it, then binding it to the straightener, and leaving it in this position until it dried. In the case of the ' batons ' it is more likely, from the grooves on the perforations and the angles of the perforations to the shaft, that, if they were arrow-straighteners, as appears most probable, the wetted shaft was passed through the perforation and then wrenched into shape. Dr H. S. Harrison in a review of *La Madeleine* by L. Capitan and D. Peyrony (*Man*, 1929, 68) writes :—' The appearance of the numerous " bâtons-de-commandement " that were found tends to suggest that their interpretation as shaft-straighteners is likely to be correct. If they were " chiefs' staves ", then the chiefs were either extraordinarily numerous, or very careless with their insignia '.

AUSTRIAN LAKE-DWELLINGS

Dr Leonhard Franz of Vienna, contributes the following notes :—

In three of the beautiful lakes of Upper Austria, the Mond-See, Atter-See and Traun-See, lie the remains of prehistoric pile-dwellings belonging to the Copper Age. They have yielded numerous objects such as pottery, axes, saws, clubs, stone arrowheads, knives, fish-hooks and jewellery of copper, necklaces of marble and perforated teeth. The muddy floor of the lake in which they lay has preserved things which would otherwise have perished, such as wooden axe-hafts, knives, spindle-whorls, fragments of mats and ropes, and articles of food. Thus the Upper Austrian lake-dwellings complete, in a very valuable way, our knowledge of the Alpine pile-dwelling culture already gained from the Swiss lake dwellings.

Recent investigations show that the lake-dwellings of Austria and Switzerland have no close connexion with one another, except for their general features and the influence of northern tribes which reached both

regions. These investigations have thrown fresh light on the problem why men took the trouble to build their houses in the water instead of on dry land. The reasons seem to have varied in different lands and at different times.

In Upper Austria, a close examination of the sites shows that the Copper Age villages were situated quite near the shore and that the sites were carefully chosen with a view to trade routes. In the Mond-See one site lies close to the source of the river which connects this lake with its neighbour the Atter-See. In the Atter-See some pile-dwellings were found near the river Ager which empties out of the lake and connects with the river Traun. The Traun comes from the Traun-See, and in this lake also there are lake-dwellings, again near the source of the river. From this it may fairly be assumed that the lake-dwellings were connected with a system of water traffic. As we know from finds in Switzerland and in Germany, the people of the Copper Age used canoes made from tree trunks.

The reason for this traffic was, as we believe, the trade in copper. Numerous copper mines in the mountains of Salzburg and the Tyrol show that already at the end of the Stone Age men knew how to extract the metal. Since it was at this time a rare and precious material, it is obvious that a lively trade in it would arise. Starting from the copper district in Salzburg, where these prehistoric miners worked, numerous finds along the Salzach stream in a northerly direction show that this was the trade route to the Danube. From the site of the present town of Salzburg there is a natural road eastwards touching the lakes of Upper Austria. The distance between Salzburg and the Mond-See is only 30 kilometers, and when using this eastern route the copper traders had the advantage of the waterway, which was short and cheap, as it is even nowadays. From the Mond-See by way of the river mentioned above they reached the Atter-See, and thence by way of the rivers Ager and Traun came to the Danube,which was the great connecting link between east and west.

In the light of this theory, one can guess the origin of the lake-dwellings. They were a kind of ports intended to facilitate the copper trade, and perhaps they also acted as custom-houses to control it. That such a lake and river trade is not impossible is shown by the trips which the people round the Mond-See made in the last century in connexion with the timber trade. They left the lake in their canoes and went by just the route suggested above as having been used by the copper traders, as far as Vienna.

THE ACROPOLIS

Mrs Dina Portway Dobson has kindly written the following description of an air-photograph (plate VII) of the Acropolis:—

The air-photograph shows in the centre the Acropolis, a great rock which runs roughly east and west in the midst of the Cephisian plain, standing out distinctly and to be seen by voyagers on the Aegean sea five miles distant, and forming the very heart of the city of Athens.

Athens as an archaeological site shares the fate of such cities as Rome and London, which have been inhabited uninterruptedly from the time that they were first settled. Each succeeding people or generation, bent on making the best use of the limited space at its disposal, was ruthless in sweeping away the outgrown buildings of its predecessors. Thus the soil of the Acropolis is a veritable palimpsest, made evident by the spade, and clearly shown in this photograph.

The first inhabitants, of neolithic times, have not left any conspicuous traces on the rock, and the earliest masonry now visible belongs to the Bronze Age, which was, probably, the period of the greatest material glory in the Aegean world. Between 1500 and 1100 B.C. Athens formed one of a series of strong and magnificent cities:—Mycenae the golden, Argos, Tiryns, Troy, and the slowly declining towns of Crete. On the Acropolis itself there have been found the remains of a Mycenaean palace and lesser houses, while the whole was girt with walls of Cyclopaean masonry—that dry-walling of the Bronze Age, here executed on a heroic scale. Some of this fortification remains today.

This civilization was swept away by the incoming of an iron-using folk, who worshipped Athena, and built a temple in her honour on the Acropolis, which in its turn fell, and was replaced by a new temple built on its ruins in the VIth century B.C.; a building with a stone peristyle. The ground plan of this can be seen in the photograph just to the north of the shadow cast by the principal building now standing, the Parthenon.

This temple was destroyed by the Persians when they vainly ravaged Athens in 480 B.C.; vainly because the folk had fled, and the invaders wreaked their vengeance on bare walls and olive trees.

It was when the city was triumphantly reoccupied after the Persian wars that it devolved upon the citizens, as a religious duty, to make good the devastation wrought on the homes of the gods by the barbarians. Athens, at the height of her splendour and wealth, undertook

the task in no grudging spirit ; and it is the buildings that she raised at that time, roughly between the years 448 and 438 B.C., that can now be seen.

Chief amongst these is the Parthenon, the great temple to the maiden goddess, built in the Doric style, of marble from the neighbouring quarries of Pentelicus. It was designed by Ictinus, and the building was carried out under the supervision of Callicrates. Its decoration is well known to us in England, since much of its fine frieze is in the British Museum, and is commonly known as the Elgin marbles. The temple remained standing, singularly complete ; serving first as a church, then as a mosque, and still retaining its roof till 1687, when a Venetian bomb fell on it while it was being used as a magazine by the Turks, and reduced it to the lonely ruin shown in the photograph.

To the extreme north of the ground plan of the older temple to Athena stands yet another sacred to the goddess Erechtheus, commonly called the Erechtheum. This was built on two levels, and is, perhaps best known for its southern porch of the Caryatids : female figures serving as pillars to support the roof.

At the west end of the rock appear the ruins of a series of buildings. These formed the Propylaea, or entrance to the precinct. This was nobly and spaciously designed, and consisted of a great staircase with halls and porticos to the right and left ; one forming a picture gallery. On the south side stands the little temple to Nike Apteros, the Wingless Victory. This can be made out on the photograph, crowning the bastion on the south side. It has had a chequered career. Built by Callicrates about 426 B.C. it stood until it was taken down by the Turks, and finally rebuilt on their departure after 1835.

All round the Acropolis, and especially on the north, can be discovered fragments of the temples destroyed by the Persians, and used as masonry in the later rebuilding. Just so in many a church built in the fifteenth century we can pick out stones worked by the Normans, or even by Saxons or Romans.

To the south the theatre of Dionysus can be clearly seen. It was partly hewn out of the rock, and was constructed in 499 B.C. The ground plans of the temples to this god, built in different ages, are further yet to the south.

Extending in a long line roughly parallel to the western half of the Acropolis is work of Roman times, the Odeum of Herodes Atticus of A.D. 161 and other temples.

Such are the principal buildings shown in this air-photograph, and it is not unbefitting that Athens the soaring and aspiring, Athens with Athena's bird as her symbol, should be depicted by the help of wings.

CONGRESS AT BARCELONA

An International Congress of Archaeology is to be held at Barcelona, 23 to 29 September. Invitations have been issued to all archaeologists and to many others likely to be interested, by the Secretary, Professor Bosch Gimpera (University of Barcelona). The date has been arranged so as to coincide with the International Exhibition, in which an important place is given to Spanish Art and Archaeology. There will be lectures and excursions, and altogether the opportunity of becoming acquainted with the important results achieved in Spain during recent years is one which should not be neglected.

NEW LANGUAGE DISCOVERED IN SYRIA

As we go to press a startling piece of news reaches us from Syria.

The excavations which have just been carried on by MM. F. A. Schaeffer and C. Chenet at Ras Shamra, 8 miles north of Latakia, have yielded about 15 clay tablets covered with a cuneiform script of a hitherto unknown character. The tablets and the objects with which they are associated go back to the 14th century B.C.

The writing of Ras Shamra is actually quite different from that of the Sumerians or Accadians. It consists of only 26 or 27 signs, and is therefore evidently alphabetic, and analogous with that used by the Achaemenid Persians 800 years later.

What language is hidden behind this mysterious writing, which M. Virolleaud is attempting to decipher, we do not yet know.

Recent Events

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

Among the objects from neolithic habitation-sites at Windmill Hill and Abingdon (excavated by Messrs Keiller and Leeds respectively) are certain many-pronged objects of stag's horn. The purpose of these is puzzling, but has been explained by comparison with similar objects used by the modern Esquimaux. It is interesting to learn that a precisely similar implement has been found at Spiennes in Belgium, the great neolithic flint-mining district. We hope to review Monsieur Rahir's book in a later number (*Vingt-cinq années de recherches, de restaurations et de reconstitutions*, Brussels, 1928, p. 183, fig. 99 ; compare ANTIQ. JOURN. VIII, 470). Meanwhile here is yet another, and apparently earlier, link between England and the Rhine-Meuse region.

A new camp has been discovered at Padbury, Bucks. It lies at the south end of the village, and the rampart is still fairly well preserved. It is called Norbury, and was found by Mr Nowell Myres, the clue being provided by an old estate-map belonging to All Souls College.

In our last number we said (p. 229) that Comte Bégouen and Monsieur Adrien de Mortillet had stated that the well-known painted pebbles of Mas d'Azile were all forgeries. We have received a letter from Comte Bégouen protesting against the attribution of this opinion to him, and another to the same effect from Professor Breuil. We regret having been misled by the passage from which we quoted ; but at the same time we must lay the blame entirely upon the equivocal manner of its publication. No one reading it would suspect that Comte Bégouen and Monsieur de Mortillet had held contrary opinions.

In the present number we publish an article on the construction of megalithic monuments (and their wooden equivalents) by one who has seen and photographed the work in progress ! One thing more is needed, and that is for someone to make a film of it. Such a film would be of the very greatest interest to every educated person ; and of incalculable value in years to come.

Incidentally it is nice to know that Woodhenges are still being made and used in Assam and that they are closely associated with the cult of the dead.

Acting on a hint in Aubrey, Mr Stuart Piggott recently visited Alfred's castle near Ashdown Park in Berkshire. He found, as he had hoped, that the rampart was originally faced with Sarsen boulders, like Uffington castle. Several large sarsens are still *in situ*, and there are many more in the ditch. Potsherds (mostly of the late Iron Age) are abundant.

Mr C. W. Phillips dug a trench to ascertain the age and character of a circular enclosure at Moat House Farm, Wraxhall, Somerset (5 NW). He writes ; ' It proves to be a small fortified enclosure, surrounded by two concentric ditches cut in the solid rock. The finds show that, at the time when the ditches were open to the bottom, a black Iron Age ware was in use. Typical Roman ware only occurred high up in the rubble filling, 1 ft. 6 ins. from the present surface. The ditches have been carefully cut in the solid rock with great labour, and I dug some way along the outer ditch to see how it carried on. I found it symmetrical with sides of equal batter, and a flat bottom'. A beehive quern was found in the inner ditch.

The excavation of the curious and interesting little ' double-camp ' at Kingsdown, near Mells, was resumed on 8 April. The rampart is of Roman construction (and a beautiful example of dry stone walling it is) ; it has an outer ditch of the same age, and it lies partly over an inner and earlier ditch. In this latter were found, amongst other things, two iron currency-bars and a native British coin attributed to the middle of the 1st century A.D. (*The Times*, 21 May, p. 17).

Miss Garrod and her colleagues, who have been digging in caves near Sulaimaniyah in Iraq, have found Mousterian and late palaeolithic remains there (*Nature*, 9 Feb., p. 217). We shall look forward to hearing more about these excavations and the later ones undertaken on a (possibly mesolithic) site at Mount Carmel.

Undoubted proof of the existence of palaeolithic man in Ireland has been found by the members of the Bristol University Spelaeological Society, working in conjunction with the Royal Irish Academy (*Nature*, 18 May, p. 757).

Excavations at Battle Abbey, carried out under the supervision of Mr Harold Brakspear, F.S.A., have revealed the apse of William the Conqueror's church, and a large portion of the north side of the presbytery (*The Times*, 17 May, p. 11).

A discovery which, if authentic, is important, is reported from near Pekin, consisting of the teeth and bones of palaeolithic man (*Sunday Dispatch*, 9 June).

Monsieur Bayle, of the Prefecture of Police, has submitted his report on Glozel. It states that the articles examined have all been faked. The report does not appear to have been published (*Daily Telegraph*, 29 April, and *The Times*, 11 May, p. 13).

An infantry officer digging in his garden at Asker, near Oslo, found a Viking grave of the 10th century, containing a sword, spearhead, shield-boss, axe, two knives and a whetstone (*The Times*, 14 May).

The Michigan University Expedition, which has been excavating the ancient city of Karanis (Kom Aushim) in the Fayum, has found, amongst other things, a striking wall-painting and some papyri in Greek and Latin. These latter include private letters, a legal report and a contract of sale, all dating from the second century A.D. (*The Times*, 11 May, p. 14).

Some interesting discoveries made on Lambay Island, off the Dublin coast, have recently been acquired by the Dublin museum. They were made accidentally and are described as of the first century and earlier. (*The Times*, 31 May, p. 15). Lambay has been identified with the Limnus of Ptolemy, mentioned by him next to Edrus (Hill of Howth). But there are difficulties in the identification.

A ' dolmen ' has been opened at Presles (Seine et Oise). ' The floor is carefully paved. . . . On the inside are reliefs, well preserved but difficult to interpret. In one place an axe may be represented. The vestibule was probably filled intentionally in the Neolithic period. In it were found tools of stone and of bone, fragments of vases, and some bones of animals, fourteen in all. In the chamber were some forty objects of stone and bone, besides flakes of flint, and remains of the skeletons of more than a hundred persons of all ages and both sexes. Several skulls show that they had been severely injured and healed. The long bones also showed various fractures'. (*Amer. Journ. of Arch.* (1929), XXXIII, 119, summarizing *Revue Archéologique* (1928), XXVIII, 1–13).

It is reported that an air-survey is to be made of the ruins of Zimbabwe, which are now being excavated by Miss Caton-Thompson and her colleagues. So far as one can judge from published information, the area is admirably suited for this method of research, since not only will the ruins themselves yield up their plans but the whole district is covered with remains of ancient fields, tracks and settlements. For such, and especially the fields, air-photography is the ideal weapon. (*Daily Telegraph*, 25 April).

The examination of the western half of the nave of Glastonbury Abbey has been continued. This work is being directed by Mr C. R. Peers and Mr A. W. Clapham, President and Secretary respectively of the Society of Antiquaries of London, and Dom Ethelbert Horne, Chairman of Council of the Somerset Archaeological Society. Excavations on Ham Hill, Stoke-under-Ham, six miles west of Yeovil, at the Saxon cemetery at Camerton and at the Meare Lake Village have been continued.

Colonel G. R. B. Spain sends us the following report:—

The North of England Excavation Committee have continued their work on the eastern end of the Roman wall during April, May and June 1929, in continuation of the autumn campaign of 1928 (*vide* the 2nd Report of the Committee). The Fort at Wallsend and its junction with the great Wall has been investigated, and its correct plan in relation to the modern streets has in the main been recovered. The north gateway of the Fort was located in Leslie Gardens, Wallsend.

In Newcastle the search for the lie of the Wall to the west of the 300 yards stretch, located in 1928 in the west of the city, has been actively carried on below streets and business premises, and a further stretch of some 600 yards has been added to the length discovered last year. The investigations show that the line runs from St. Dominics Priory (Red Barns) to the Sallyport gate in the old town Wall and from thence probably to the line of Silver Street.

The search for the lost fort of Pons Ælii has resulted in the location of a Roman occupation site at the Newcastle castle keep. An altar with a partially legible inscription, a denarius of Vitellius (A.D. 69), a Samian base of the potter Capellius of Lezoux, and other fragments, besides walling of a puzzling character, have been discovered.

The investigation of the course of the Vallum in Newcastle seems to show that the O.S. line in the Summerhill Grove district is wrong as no trace of the Vallum ditch can be located in this area. The turret on the Wall at Denton, discovered in 1928 (*vide* Report), has now been completely excavated and some interesting discoveries have been made.

[Since this was written, the fort of Pons Ælii itself has been found.—Editor].

The recently issued part of the *Bullettino de Paletnologia Italiana* completes the 47th year of publication. This very valuable serial, of which the earlier years are now so scarce as to be unobtainable, is very little known to English readers. Apparently only one private individual and two libraries take it in the whole of Great Britain. And yet the *Bullettino* is the only original source for a great deal of information on prehistoric subjects in Italy, and its price is low, only 40 lire (about 9 shillings English).

The current volume consists of 200 octavo pages, with index, bibliography and 19 pages of illustrations. The articles, written by the

best archaeologists in the country, treat of all periods from the Italian palaeolithic to the Iron Age. A masterly article from the pen of the Editor himself, discusses the light thrown by recent archaeological discovery upon the origins of Rome. Readers of ANTIQUITY might well be urged to subscribe for this admirable publication or to induce their libraries to take it. It is indispensable to all who wish to keep *au courant* with the problems of Mediterranean archaeology. The Editor is Dr Ugo Antonielli, Museo preistorico Pigorini, Rome.

Some important work on the site of Beth-pelet (Tell Fara), in southern Palestine, which throws more light on the period of the Hyksos or Shepherd Kings who ruled Egypt before 1600 B.C., is reported by Sir Flinders Petrie in a letter to *The Times* 21 May, p. 15. Earth-camps of the Hyksos have already been found at Tell el Yehudiyeh and Heliopolis and to these can now be added a cemetery of over 20 graves with more than 100 scarabs and much pottery. Only part of the site at Beth-pelet has been dealt with, so that further graves may be expected next winter. Professor Petrie maintains that the whole scale of early European history depends on the chronology of the Hyksos Kings and to secure evidence for consecutive monuments of their period is one of the great needs of historical study. In a further letter (1 July, p. 15) Sir Flinders states that five great tombs of the Philistine rulers have also been found at Beth-pelet. Some contained several successive interments and their date is shown, by the names of Egyptian kings, to be between 1320 and 1100 B.C.

A full report of the excavations, with historical notes on Beth-pelet by R. St. Barbe Baker, is printed in *The Times* 6 July, p. 15.

The annual exhibition of the British School of Egyptian Archaeology was held at University College, London, last July.

A report on recent excavations in Italy is published in *The Times*, 14 May, p. 15. Work has been resumed at Aquileja—20 miles south of Udine—which was an important military station in the time of Augustus. At the old port on the Natisone canal, which connects Aquileja with the sea, parts of the quay, made with Istrian stone joined with iron bars, have been uncovered. The foundations of two great towers, which appear to have been built in consequence of some

emergency, were found, the material used including fragments of sarcophagi, cornices, and plinths. Two tablets, with epigraphs of the 3rd and 4th centuries, were discovered. Near Como a sepulchre of 5th or 6th century B.C., and a Roman four-wheeled cart, have been found. At the cathedral of Torcello (Venice) a great Roman sarcophagus of marble was found under the cathedral altar during some restoration there. It is supposed to be the first tomb of San Eliodoro, bishop of Altinate, and protector of Torcello.

A further discovery at Agrigento (Girgenti) in southern Sicily has been identified by Prof. Marconi as the image of an ' Unknown God ', the collar being a frontal plait of hair with a human ear at each end, indicating personality but without identifying features. The report (*The Times*, 15 May, p. 15) reminds us of the saying of St. Paul (Acts, XVII, 23) when he speaks of having seen an altar dedicated ' To An Unknown God '.

The Mission of the French Académie des Inscriptions et Belles Lettres at Minet el Beida, 7 miles from Latakia (Syria), has continued its excavations this season. Besides Cyprian pottery and bronze utensils, two bronze hawks of purely Egyptian style have been found, as well as a bronze statuette, plated with gold, representing Teshub, the Hittite war-god (*The Times*, 21 May, p. 13).

Mr A. H. M. Jones, of the joint expedition of the British School of Archaeology and Yale University at Jerusalem, reports (*The Times*, 8 June, p. 10) on the work at Jerash, Transjordan, where attention has been given chiefly to the ecclesiastical buildings. The church east of the Fountain Court, believed to date from the 4th century, has been uncovered, the masonry confirming the dating. A small church in the south-west angle of the town has also been excavated. The dedication and the name of its builder are given in two inscriptions in the mosaic floor of the nave. Yet a third site revealed three churches, two of which are dated as 6th century. They contain fine mosaics, one of which we hope to publish in ANTIQUITY.

A report of recent discoveries on Hadrian's Wall appeared in *The Times*, 11 June, p. 9.

The Cairo correspondent of *The Times* (13 June, pp. 17–18) contributes an interesting account of the temples of Philae (of which air-photographs were published in ANTIQUITY for June last) and the effect which the decision of the Egyptian Government to raise the Aswan Dam will have on them.

There has been much activity on Romano-British sites during the last few months. In addition to the work on Hadrian's Wall reported elsewhere, excavations at York, Chester, and Caerleon have been continued. The Yorkshire Archaeological Society continue their work at the Fort of Brough-by-Bainbridge and also at Malton. At Kanovium the Cambrian Archaeological Society have completed four years' excavation by the examination of the area outside the north rampart. Excavations in progress at Caistor-by-Norwich, Richborough, and Lydney have also been continued.

A remarkable rock-painting has been found by Signor Cipriani in the Marandellas district of Rhodesia. Its particular interest is that there are two paintings, one superimposed over the other. (*The Times*, 21 June, p. 14).

An interesting account of the Roman galleys in Lake Nemi, one of which for the first time in nearly 2000 years has now been exposed to human sight, was contributed to the *Daily Telegraph* 22 June, p. 10, by Prof. Arduino Colasanti, the originator of the proposal to drain the lake.

An exhibition of Mr Woolley's finds during the last season's work at Ur was held at the British Museum in July. An account of the principal objects is given in *The Times*, 6 July, p. 9.

Some Recent Articles

This list is not exhaustive but may be found convenient as a record of papers on subjects which are within the scope of ANTIQUITY. *Books are occasionally included.*

The Porlock stone circle, Exmoor, by H. St. George Gray. *Proc. Som. Arch. Soc.* (1928) LXXIV, 71–77, contoured plan, 1:120.

An account of a newly discovered stone circle, with full details of its condition and surroundings.

The Forests of Europe and their development in post-glacial times, by Dr T. W. Woodhead. *The Empire Forestry Journal*, VII, no. 2.

A valuable contribution to the reconstruction of prehistoric environment by a recognized authority. The paper was originally read before the British Association at Glasgow in 1928.

Some aspects of the post-glacial history of British forests, by Dr Erdtman. *Journal of Ecology*, XVII, 112–126.

A valuable summary by one of the leading continental authorities. Dr Erdtman has utilized the evidence of the pollen-content of the peat, and has something to say also about archaeological horizons.

History of the vegetation of the southern Pennines, by Dr T. W. Woodhead. *Journal of Ecology*, XVII, 1–34.

Contains important archaeological synchronisms. We hope to review it later.

British domestic sheep, by H. B. Booth. *The Naturalist*, no. 869, June 1929, pp. 203–207.

Interesting observations by a 'practical wool stapler'. He accounts for the large number of distinct breeds of sheep in proportion to the size of Great Britain, by the geological variety of the country. This opens up a promising line of enquiry for prehistorians.

What the Soil of Greenland tells of its mediaeval inhabitants, by Paul Nörlund. *Art and Archaeology* (May 1929), XXVII, 201–210.

The Lincolnshire beakers of the Early Bronze Age, by Austin Lee. *Assoc. Arch. Soc.'s Reports* (1927), XXXVIII, part 2, pp. 209–212; 5 plates.

A useful account of the 'eight beakers, and a few fragmentary remains of others' which have been found in Lincolnshire, with excellent illustrations of them and a schedule.

The Plans of York, described by George Benson. *Assoc. Arch. Soc.'s Reports* (1927), XXXVIII, part 2, pp. 331–352

An excellent description of them, with small scale reproductions of plans of 1574, 1697, 1722, 1750 and 1785.

Neolithic flint implements from west Somerset, by C. F. Moysey. *Trans. Torquay Nat. Hist. Soc.*, 1928, pp. 81–9.

Iron Manufacture and Heat Generation, by Prof. Henry Louis. *Nature*, 18 May 1929, p. 762.

Abstract of the presidential address to the Iron and Steel Institute. A survey of iron working from prehistoric times.

The Caves of Altamira, by Prof. H. Obermaier. *Country Life*, 27 April 1929, pp. 606–8, illustrated.

Air Photographs of the Middle East, by O. G. S. Crawford. *Geographical Journal*, vol. LXXIII, June 1929, pp. 497–512.

Articles in the *Illustrated London News*

Among the many important articles on archaeological discoveries and events which have appeared in the *Illustrated London News* during 1929 are the following:—

5 January. Bolivian relics at Tiahuanacu, 30 miles west of La Paz.

The wrecked statues of Hat-Shepsut, Thebes.

19 January. Drawings by Australian aboriginals. The illustrations accompany a review of Sir Baldwin Spencer's *Wanderings in Western Australia* (Macmillan, 1929, 2v., 42*s*.).

Article by Prof. F. Halbherr on discoveries in Trajan's Forum and elsewhere in Rome.

26 January. The first Maya mosaic ever found. [At Chicheniitza, Yucatan].

Sumerian Art and Human Sacrifice, by Mr C. L. Woolley. [Illustrating his work at Ur].

9 February. Palestine as a home of ancient Man, by Sir Arthur Keith. [Based on the discoveries made in the group of caves in the Wady-el-Mughara on the slopes of Mount Carmel].

16 February. An early British Shield from Wales, illustrations and description by W. J. Hemp, F.S.A. [Found in 1873 on Moel Hiraddug in the Vale of Clwyd, formerly pronounced as Roman but now dated 2nd century B.C. Based upon a paper by Mr Hemp in *Arch. Camb.* (1928), LXXXIII, 253–84].

23 February. Excavations in Afghanistan by the French Expedition, directed by Mons. Alfred Foucher and others. [About 50 ancient sites have been noted but only 13 have been excavated. Among the finds are a fragment of high relief sculpture reproducing an episode in the life of Buddha, found at Hadda ; a 3rd century *stupa* with figures of Buddhas and Bodhisattvas ; and a great number of most remarkable statues and statuettes of Hellenistic character which point to Greek artists having settled at Hadda].

2 March. An account of a prehistoric iron mine found by Baron Von Miske and Dr Von Bandat at Velem, in western Hungary.

9 March. An article on the work of the German Archaeological Institute at Athens, where the site of the Dipylon, the main city gate, is being excavated.

23 March. Graeco-Celtic bronze urns and flagons of the 5th century B.C., found February 1928, on the site of Bouzonville abbey, near Metz, described by Reginald A. Smith, F.S.A. [One of the flagons is illustrated in colour in the number for 30 March. It is one of the most beautiful prehistoric objects ever found in Europe ; and it is good to know that it will find a permanent home in the British Museum].

6 April. Discoveries at the Gizah Pyramids in 1928–9, during the excavations conducted by the Vienna Academy of Science under the direction of Prof. H. Junker.

The finds include an alabaster offering-plate ; statues of King Seshemnefer *in situ*, and of the court physician Ni-'Ankh-Re ; sarcophagi ; inscribed stone blocks ; and alabaster vessels used for offerings to the dead.

Drawings on stone of an Impala ram now in the South African Museum at Cape Town, and of a vulture on basaltic rock found at Klerksdorp, western Transvaal. [They are described by Mr Herbert Lang, who has further articles on prehistoric drawings in the issues for 13 and 20 April].

18 May. Illustrations of the Parthenon Frieze showing, by means of the juxtaposition of plaster casts made for Lord Elgin in 1801, how the parts still *in situ* on the temple have decayed.

15 June. Discoveries at Constantinople by Mr D. Talbot Rice, field director of the British Academy Archaeological Expedition.

29 June. The Zimbabwe Ruins, by Mr J. P. Cope. Historical sites in Iraq, from air-photographs taken by Wing Commander Insall, V.C.:—Mutawakkil's palace at Samarra, the 'Median' wall, Hatra, and moated mound at Tall Alij.

Articles on The Past in Persia, by Professor Ernest Herzfeld. I. The prehistoric period (before 550 B.C.), 19 Nov. 1927. II. The Achaemenian period (550–330 B.C.), 24 Dec. 1927. III. The Hellenistic and Sassanian period (330 B.C.—630 A.D.), 11 Feb. 1928. IV. The Muhammedan period (630 A.D. to the present day), 18 Aug. 1928.

We make no apology for including the above series in our list though it was published some time ago. Prof. Herzfeld knows Persia and Iraq better than any other living man, and he writes at first hand. The *Illustrated London News* has reproduced the photographs of his latest tour in its usual admirable fashion. The illustrations include Pasagardae (I); Persepolis (II); Kale-i-Dukhtar and Tak-i-Bustan (III); Khargird, Mosque of Waramin, and many other Muhammedan sites (IV). Prof. Herzfeld's text is an excellent, if naturally too brief, summary of the history of the region. The captions however (which are not Prof. Herzfeld's work) leave much to be desired, as usual. The habit of inverting the proper sequence and putting the name and description of the picture last is most aggravating.

Prof. Herzfeld has contributed a new series of articles to the *Illustrated London News* (25 May, 1 June, 8 June, 1929) which deal with prehistoric Iran. The first concerns the relations between the neolithic settlement of inner Iran and the oldest civilizations of Elam (Susa I) and Sumer (Ur and Kish). The second article describes the early Bronze Age settlements near Nihawand and the last deals with the Stone and Bronze Ages in northern Iran.

Reviews

GREAT BRITAIN: Essays in Regional Geography by twenty-six authors. *Edited by* ALAN G. OGILVIE, O.B.E., M.A., B.SC. *Cambridge*, 1928. 21*s*.

Readers of ANTIQUITY hardly need to be reminded that archaeologists must attend to geography; for it has been one of the constant cares of this journal to emphasize the importance of maps, and the scientific reading of maps, to the student of early human history. Therefore a detailed geographical survey of Great Britain is sure of a welcome in these pages. It would have been still more welcome had it been the work of a single writer, or a band of writers working in close collaboration. But the parcelling-out of a field of study among a number of independent contributors, following no common plan and sharing very few ideas as to how their section ought to fit into the whole, can never make a satisfactory book. Every contributor brings his own perspective, his own scale of values, and his own opinions, to bear on his region: and the result is that no inexpert reader can determine exactly how far the differences which the book seems to reveal between one region and another are differences between the regions or merely differences between the points of view from which they have been described. Thus—to take a question of great importance for archaeology—how far would it be true to say that the chalk uplands were found by early man free of woodland? One writer says quite simply: 'With pasturing excluded chalk grassland would be occupied by scrub and beech forest' (p. 26). Another says 'it seems probable that these areas were originally forested', because 'an authority has recently stated, on the basis of ecological investigations, that 'the vast bulk if not all of it (the English chalk) would pass into woodland if pasturage were withdrawn' (no reference is given to the 'authority'; p. 75). This writer also adduces, as evidence for primitive forest on the chalk, the alleged fact that 'in earlier (Neolithic?) times . . . a moister climate prevailed' (p. 26). A third writer says 'there is no substantial evidence of any change in the total amount of annual precipitation in this part of England' (p. 135) and that 'it is virtually certain that the heavy undrained clays of the lowlands were covered primevally with forest or swamp, while the uplands, the home of the earliest inhabitants, were relatively clear' (p. 137). Now the first writer is speaking primarily of Kent, the second of Hampshire, and the third of the southern Midlands; but the difference between the first two and the third appears to be a disagreement on a point of botanical geography, not a difference between chalk uplands south and north of the Thames respectively.

It is not within the competence of this journal to criticize the main body of the book, its geographical portions, in the stricter sense of that rather compendious epithet. But in most of the chapters there are statements, often amounting to formal paragraphs or sections, about the early human history of the region; and on these portions we can hardly avoid commenting. Some contributors, including some of the best, omit these matters altogether. Some of those who deal with them, deal with them creditably. The fact that Professor Fleure writes the chapter on Wales is a sufficient guarantee for the treatment of the ethnology and early history of the Principality. The writer on

East Anglia has used Dr Fox's *Cambridge Region* and Mr Leeds's *Anglo-Saxon Settlements*; though why he should say that Brancaster was the headquarters of the Counts of the Saxon Shore, I do not know. But in a good many cases the statements about early history not only show little sign of personal knowledge or research, but do not even seem to have been submitted for criticism to someone who knew the outlines of the subject. Thus one writer, who tells us that the highly-developed regional consciousness of the Devon-Cornwall peninsula ' took shape in prehistoric time '—an *obiter dictum* which one would like to see discussed in the light of evidence—also says that in this peninsula ' traces of the Romans are generally scarce though they are found as far west as Exeter ' (p. 105). This seems to mean (*a*) that scanty traces of the Romans are found at Exeter and farther east—which is misleading; for a visit to the Exeter museum shows that the relics of the Roman town of Isca Dumnoniorum are not particularly scanty—and (*b*) that no traces are found farther west, which suggests that the writer has not even gone the length of looking up the *Victoria County History* of Cornwall or the Ordnance Map of Roman Britain. Another writer informs us that ' the oldest human trackway in Britain (the medieval "Pilgrims Way") led westward to Salisbury Plain where stood Stonehenge, our prehistoric capital ' (p. 29)—exciting our unsatisfied curiosity as to the methods by which the dates of *all* British prehistoric trackways have been fixed, and adding another to the theories concerning the nature and purpose of Stonehenge. But the most painful part of the book, to the archaeologist, is that which describes Cirencester as a Roman military base and Bath as a Roman colony (p. 120), and, discussing the Anglo-Saxon settlement, states that ' during this period the route to the lower Severn *via* the Thames valley was blocked to the Anglo-Saxon invaders at its eastern end by the fortress of London ' (p. 121). The assertion that the walls of London are responsible for the lack of early Saxon settlements in the lower Severn basin is about as well founded as the description of Bath as a Roman colony. But worse is to come. Bristol, we learn (p. 123), was a Romano-British town with an elaborate history and some very remarkable features. ' Bristol was walled only about a century before the withdrawal of the Roman legions. The form of ancient Bristol and the street lines are so like those of Gelvium (*sic*; can Glevum be meant?) and Aquae Sulis as to confirm the view that the imperial plough originally marked out her *pomoerium*, the inner line of which can still be traced '. One would like to ask (i) what single shred of evidence there is for a Roman town at Bristol—since street-lines are not evidence; (ii) if there was such a town, where the remains of its walls are; (iii) what tangible evidence dates these walls to the early fourth century; (iv) on what grounds the author ascribes a *pomoerium* to a minor provincial town; and (v) what he means by the ' inner line ' of a *pomoerium*.

R. G. COLLINGWOOD.

ART IN ANCIENT ROME. *By* EUGENIE STRONG. (*Ars Una : Species Mille series*). *Heinemann.* 1929. 2 *vols. pp.* xvi, 199, viii, 221, *and* 584 *text-figures.* 20*s*.

Mrs Strong's indefatigable championship of Roman Art, as against the one-sided attitude which ' claims perfection for the art of Greece, and denies even merit to that of Rome ', as she herself wrote some twenty years ago, has been of the greatest service to archaeological and artistic study; for it was high time that the tyranny of Greece—an excessive revenge for the failure to appreciate the Elgin marbles a century ago—should at last give place to a more reasonable frame of mind. In the present volumes, with the battle almost over, she is able to speak of ' what Roman sculptors could accomplish when

they threw overboard the paralyzing influence of Greece ' in reproducing a most lovely sepulchral statue of a woman, which has recently come to light near Rome (II, 124), and even to gibe (II, 125) at the Hellenists for being shocked at ' the combination of a fragile support with a heavy half-bust ' (that of Commodus in the Palazzo dei Conservatori). In truth, Roman art is not Greek art, and never pretended to be ; but it has a real existence and real merits, not the least of which is the sympathy it manifests in its representations of children, of women and of the old and ailing, and Vergil's rather unfortunate remark : ' Others, I ween, shall hammer out the breathing bronze with softer grace, and call from marble the living face ', has too long been used in evidence against it. Such a piece of self-condemnation, of course, proves out of the Roman's own mouth that in matters of art he is only fit to repent in sackcloth and ashes in face of the more fortunate beings who were born into the blessings of Hellenic culture.

In the compass of the volumes before us (four hundred pages of text and nearly six hundred illustrations) we cannot expect more than a summary treatment of the whole subject ; and, in contrast to her previous book on Roman Sculpture, Mrs Strong here (and rightly) begins at the very beginning, and takes in architecture, painting and so forth—art, in fact, in all its manifestations, from prehistoric times to the reign of Justinian. This being so, it is impossible to expect full treatment of points of detail, though there is one deficiency in the illustrations that may be mentioned at once : no example is given of the beautiful little sepulchral altars and urns that are only briefly mentioned in the text (I, 146). On the other hand we are fortunate in having many of the more recently discovered pieces of sculpture brought before us ; it is remarkable that of fifty or sixty accredited portraits of Augustus, two of the four or five more striking have come to light within the last twenty years. It is interesting to notice that Greek influence, which at an earlier period had come in to some extent through the Etruscans (who, however, always preserved a strong individuality), was at its highest in Rome during the last century of the Republic, both in architecture and in art ; whereas it was under Augustus that the Romanization of Mediterranean art was accomplished. From his time onward it progressed vigorously and independently ; as Mrs Strong notes, even Hadrian, frequently as he had visited Greece, steered free of Greek influence in his building schemes for Rome and ' to talk of the Hadrianic ideal as " stale classicism " which claimed to be a revival of Greek art, is simply nonsense '. But the ' los von Rom ' movement persists both in art and architecture and continues, on what often seems to be insufficient evidence, to seek Oriental origins everywhere. There has been a great deal of exaggeration in this direction in the past, and it shows, unfortunately, no sign of decreasing. At the same time it is a mistake to think that Rome has yielded up all her secrets—far from it. We must indeed walk warily in making assertions, even about the best known buildings in Rome. Thus, it has generally been believed, and our author only follows precedent in saying so, that the basilica of the Flavian palace on the Palatine had a flat roof and two stories of columns, while the large hall adjacent, known as the *Aula Regia*, had a huge barrel vault. But here comes Professor Giovannoni with the statement that the basilica had a barrel vault resting on one order of columns and that the *Aula Regia* was a colonnade court, and offers to prove it to us by the drawings (as yet, unluckily, unpublished) made by his students in 1922. Equally well known works of art, with the exception of those that are dated by external evidence, have a way of changing their dates with bewildering rapidity. We have long been used to assign the balustrades in the Forum to the reign of Trajan, though fully aware that some scholars have considered them to belong to the time of Domitian. Now they are thought by some to be early Hadrianic (II, 72, but see

II, 83). Again, the almost equally well-known relief, one part of which is in the Museo delle Terme and the other in the Lateran, after figuring in all the text-books as a representation of a scene in front of the Temple of Venus and Rome, which was built by Hadrian, has now been transferred to the Julio-Claudian period by Sieveking, and consequently has to be referred to the predecessor of the present Pantheon if (which is not certain), this building can be proved to have had ten columns in the front (I, 132, 165). Similarly, a relief which probably represents a scene in front of the Temple of Quirinus, after having been dated by one authority to the reign of Caracalla, is now thought to belong, in all probability, to the reign of Hadrian (I, 132), though other authorities consider it Flavian. And we must not forget that one of the dangers that beset the discussion of historical reliefs is that of restoration. Thus, the relief of the Suovetaurilia in the Louvre (II, 66), in common with many other reliefs in that museum, has been heavily restored, including the 'face of the Emperor, who now resembles Domitian, but may have been originally someone quite different'. Mrs Strong herself once thought it to be Augustus, and the idea met with the approval of Michon at that time. And it may be simply a counsel of despair that has led Mrs Strong, in speaking of the famous reliefs of processions on the Ara Pacis, to remark, in view of the uncertainty of the recently proposed identifications of the personages who are seen there, that 'possibly nothing was intended beyond a generalized representation of the Imperial family and household on the south side, and on the north of a Senatorial group followed by a crowd of more miscellaneous character' (I, 140). I must say that I find this somewhat hard to believe, for it would seem much more natural that the portraits of definite persons should be given. The figures do not seem to be very highly idealized, and, given the difficulty of identifying the group of Imperial portraits found at Formia a few years ago (I, 188), it is better to confess our ignorance in this as in other matters. I must myself plead guilty to adding to the general confusion in one instance where Mrs Strong has quoted me (II, 74). I was prepared to follow Dr Van Deman's previous opinion in assigning the brick-*work* (there are no brick-*stamps* recorded from it, so far as I know) of the Amphitheatrum Castrense to the period of Trajan; but she has now decided to assign it to the period of Septimius Severus, thus agreeing more or less with Rivoira—as I have stated in the addenda to the Topographical Dictionary to which Mrs Strong has referred in the preface, and which has just been published by the Clarendon Press.

The fact is that, when the writing of a history of Roman Art (which is what this book really is rather than a criticism) is approached, the limitations of our knowledge become obvious; and this fact has offered too much scope to some of the brilliant German scholars who have read too much of their own philosophy into the creations of sculptors, who were in reality of a far lower mental capacity, and attempt to date and redate works of art from considerations which can hardly even unconsciously have come into the minds of their authors. What is the remedy for this state of things? Is the bewildered student to come to the conclusion that the text-books are untrustworthy? By no means; but, inasmuch as the general public cannot be expected to take an interest in the details of archaeological discussion, it is impossible for Mrs Strong, as for any author of a similar book, to give any idea of the uncertainty which still pervades many of the problems with which she has to deal; and so she herself has wisely decided to avoid the thorny paths of controversy.* One cannot help thinking, however, that in such cases means might be

* cf. also II, 83. 'In the present inadequate state of our knowledge it is hazardous to establish hard and fast decisions on bare and comparatively slight differences of style'.

found for drawing a very clear distinction between what we do know beyond any reasonable possibility of doubt, and what is still *sub judice* : between what is matter of fact and what is matter of opinion. And there is only one way out which, let us hope, will soon be adopted, and it is this :—that Mrs Strong should give us a really detailed book on the subject of Roman Art, written in the first instance for students and specialists (though that does not mean that she will not be able to make it acceptable to the general public), in which she should give us her own views in full, with the reasons that she has for holding them against the opinions of other scholars.

In dealing with a book that contains so much of interest it is impossible to give a full idea of its contents ; but a few examples of points of special interest may be taken, and first of all the passage in the description of the Ara Pacis where attention is called to the triumphant entry of the child into art, so full of importance for subsequent ages (I, 140). The chapter on painting under the Early Empire is excellent, though the little *putto* represented in fig. 290 should have been made to take his place in a far larger scheme, represented in a drawing in the Topham collection (IV, 39). One of the most striking plans produced by an ancient architect is that of the long, narrow Forum Transitorium (fig. 331) which was ' laid out in default of more space, as trapezoidal '. The effort to reconcile two divergent orientations had already obliged the builders of the Basilica Aemilia to place its side façade at an acute angle to its main façade, and the same will be found to be the case here also. But Rabirius, Domitian's architect, managed to escape the monotony that a long narrow approach to the Temple of Minerva would have created, partly by this splaying out of the Forum as it approached the Temple, and partly by decorating the interior of the enclosure wall with a row of projecting columns, round the entablature of which runs a sculptured frieze. A very interesting point is that made by Lehmann–Hartleben, that the chamber and the stairs of the Column of Trajan were not part of the original plan (II, 76, 80). The windows interfere terribly with the design of the frieze, which was complete before they were introduced (though its execution in marble had not actually begun) and was not modified to include them.†

Considerations of space compel us to close this notice, but sufficient has been said to show that Mrs Strong's book is a work of outstanding interest and, let us hope, only a prelude to that full critical treatment of this fascinating subject which she has now given us the right to expect and anticipate. THOMAS ASHBY.

NUMANTIA. Band IV : die Lager bei Renieblas. *pp.* xix *and* 309, 82 *plates. Folio volume of* 32 *plates and* 2 *maps. Munchen : Bruckmann.* £6 10*s.*

In *Numantia* IV Dr Schulten brings to a close his notable work on the Roman camps in the district of Numantia. Volume III (reviewed ANTIQUITY, II, 489) dealt with the actual circumvallation of Scipio, which resulted in the capture of the hill-town in 133.

† A number of points of detail can easily be set right in a second edition ; thus, the Temple of Jupiter on the Capitol, though it ' had been burnt down by the Vitellian soldiery ' (II, 56), had been rebuilt by Vespasian and burnt down yet again in 80 A.D. before Domitian restored it. There is not a vestige of brickwork in the Mausoleum of Augustus (I, 136). The Claudian harbour was not ' a good way ' from the mouth of the Tiber at the time of its construction (I, 162). The reconstruction of the temple of Venus and Roma is attributed to Aurelian instead of Maxentius (II, 93) and the transference of the obelisk of Antinous to the Pincio is attributed to 1633 instead of 1822 (II, 108). In one or two cases (no doubt owing to the delays to which Mrs Strong alludes in her preface), the legends of the illustrations have been transposed (figs. 82 and 83, and figs. 180 and 181 may be cited).

The present volume describes a complex of five camps, which overlie each other on the rolling hill-top of Gran Atalaya, near the village of Renieblas ; and contains notes on three other sites, Almazán, Aguilar, and Alpanseque. The whole work is a magnificent contribution to the subject of Roman castrametation, and provides, in ample measure, the richness of interest which I predicted in a former number of ANTIQUITY. It is a triumph of patience, and a masterpiece of skilful disentanglement.

Gran Atalaya is a rolling hog-back, which rises some 112 metres above the valley of the Merdancho, at its junction with the stream Moñigon. The Merdancho is most accessible for watering, the Moñigon carries the Roman road from Numantia to Augustobriga. Numantia lies four miles away, in full view, at the confluence of the Merdancho and the Duero, and can thus be watched, at a safe distance. Herein lies the strategical importance of Gran Atalaya and on this hill were erected successively the following earthworks.

I. A camp 345 metres wide, with very gently curved angles, adjusted to the contour of the hill. Length uncertain, since the south side, and most of the east and west sides, are missing. Rampart, 2–2.50 metres wide: stone-faced with earth and stone filling. Scattered internal buildings, which are fragmentary. A simple gateway. No ditch, owing to rocky soil. Possible *ballistarium* at the NW angle, detached from the wall, as at Pena Redonda and Valdevorron. Dr Schulten believes it to have been set out with the *actus* (120 Roman feet) as the unit ; but there is a 27-foot discrepancy. Date : the oldest camp on the site. Dr Schulten connects it with Livy, xxxiv, 19, and Aulus Gellius, *N.A.*, XVI, 1, and hence with Cato. Ingenious, and consistent with every scrap of evidence ; yet it must be said that the evidence is quite insufficient. This disappointment is compensated by an extremely interesting discussion of origins.

II. The north end of an earthwork, which merges with the north rampart of III, at the east tower of the *porta principalis dextra* of III, and thus masks the gate. Breadth, 415–420 metres ; length uncertain. No internal buildings. Date : certainly later than I, but the relation to III is not satisfactorily determined. Since III possesses an annexe on the east this might be another on the north ; and the case is not really decided by the masking of the main north gate, since there was another gate (*porta quintana dextra*) on the north side. It is, then, either III's north annexe, or an independent summer-camp, as Dr Schulten freely admits.

III. A winter blockade-camp, for two legions, watching Numantia. Its form is irregular, in an attempt to adopt an oblong to difficult ground. North side, 400m, east side, 850m, south side, 740m, west side, 510m ; axes, 709m each (=2400 feet=20 *actus*). Orientation agrees with September sunset. Rampart, 3m wide ; ramps to same, 10m long, by 0.70m wide. No ditch. Towers of three different sizes, holding artillery, at an average interval of 100 feet. Four main gates ; two *portae quintanae* ; possibly a postern at the NW angle. *Porta decumana*, *principalis dextra*, and *quintana dextra* well preserved, with internal (? staircase) towers, 3m broad by 9m long. The *intervallum* is 27m in average width.

The internal buildings are of the greatest interest. Only a fragment of the *praetorium* remains, sealed by a fifth-period deposit. It seems to have been a range of rooms round a courtyard, with peristyle. Its orientation is different from other buildings, but parallels for this are not wanting, and Schulten gives a very interesting series. Behind the *praetorium* lies a sumptuous cavalry barrack, for a *turma amicorum* ; then a *forum*, which produced evidence of trade ; then the *quaestorium*, a courtyard store-house, with independent offices, not unlike the great Corbridge store in plan. The tribunes' houses

are small square blocks, with a central access passage, instead of the usual courtyard of later ages, and inside them *triclinia* are provided for officers' mess. The barracks are not the familiar Imperial L-shaped pattern. Cavalry barracks are in two sizes : in each case the central feature is an oblong building 80 feet by 25 feet square, with a wing at each end, in one case 75 feet long, in the other 90 feet. Stalls and men's quarters are mixed, as the finds prove. The ordinary barracks are similar in shape, fitted into a square 130 by 130 feet, and the central building is used entirely for pack-animals. Exceptional are the Allies' barracks, fitted into an oblong 270 by 190 feet. The planning results entirely from the needs of the pack-animals or cavalry in exercise or deploying ; the Imperial *strigae* only appear as the importance and use of horses departs. Three indubitable latrines were recorded, to seat twenty, ten, and eight, respectively.

In the east annexe, whose two gates were guarded by *tutuli*, auxiliaries were quartered. The chief interest here is that the barracks vary from the courtyard plan to the normal *strigae*.

Date : the general period is not in doubt. The camp dates before the fall of Numantia, which it watches ; and Dr Schulten seems clearly right in maintaining that it has nothing to do with the final operations of Scipio. Again, the hoard of 120 *victoriati* seems to connect the camp with Mancinus rather than anyone else, and Mancinus is recorded to have occupied the camp of Nobilior. Finally, the wine-jar stamp APIΣ is to be assigned to before 146 rather than after. On the whole, then, the connexion of the camp with Nobilior in 153, whose force it would nicely contain, is to be accepted as likely. Whether Dr Schulten was wise, however, in calling it Nobilior's camp outright, is another matter. Once the general date of the camp became clear, its whole importance lay not in the man who built it, but in how it was built.

IV. A summer camp, 855 by 670 metres in size, with sharp rectangular angles ; eight gates, defended by *tutuli* ; 3-metre rampart ; no ditch. From the north-west angle an outwork (*bracchium*) runs down to the Merdancho, to protect the watering. It is 2-3 metres wide, and has two gates, protected by *tutuli*, and serving as sally-ports. Date : clearly connected with V, by style, and by its position in stratification between III and V.

British readers will welcome the useful classification in sizes, for purpose of comparison, of the Scottish summer-camps, which Dr Schulten essays at this point. This may enable them to forgive the facile assumption that all belong to Agricola (who appears as Agrippa three times). Nor is the site of Mons Graupius to be settled in parenthesis. German readers will note that nothing which Dr Schulten asserts about Agricola is in any way proved. Gilnockie and Newstead may be added to his list.

V. A very large winter-camp, 650m broad, by 965m long, with a rampart 4–4.40m thick. *Intervallum*, fifty feet. Towers lie mostly on the north (not facing Numantia), and are small or very wide, to suit single pieces and batteries of artillery respectively. They have ramps. The number of gates is uncertain, but there were at least ten. The principal buildings have been ploughed out. But there were discovered, on each side of the *praetorium*, a notable series of quarters with *triclinia*, in double rows. Dr Schulten assigns these to the *cohors amicorum*. The tribune houses are of the later Imperial type, with central court-yard, and are slightly larger than another group, which are assigned to the *praefecti*. Barracks, of the old-fashioned type, in two sizes, 90m by 60m, and 60m by 60m, apparently to fit *cohortes quingenariae* or *miliariae*. But there is this difference, that the central block is occupied by men, and not by baggage-animals. We may add to the list granaries (*horrea*), of typical Imperial plan, built on the basis, as

calculated by General Wahle, of three months' rations. Date : coins and pottery assign the encampment to shortly after the age of Sulla, and Caceres el Viejo provides an important analogy. Dr Schulten gives IV to Pompeius in 75 and V to Titurius in winter 75–74.

So much for Gran Atalaya. Almazán and Alpanseque are two summer-camps on the route from Siguenza (*Segontia*) to Numantia. The former is now much destroyed, but was a rectangle 800m by 475m in size, in which two gates were visible. Alpanseque is a contour camp, roughly circular in shape, with axes each 253m long. Aguilar is a winter-camp, on the route from Segontia towards the Ebro valley. It is very irregular, adapted to the contours, with axes of 384 and 373 metres. Its rampart is 2.20m wide, and its gates are arranged in the angle of a set-back in the rampart-line, like those of Hofheim and Newstead I. In each case, a tentative date is put forward ; but the choice is wide, and many will prefer to leave it open.

Descriptions of finds then follow. Metal objects, other than iron, by von Groller ; iron objects, by Jacobi ; coins, by Haeberlin ; pottery, by Koenen. Plates, excellent ; with the exception of I.2, which is out of focus, and X.1, the type of drawing which is not worth reproduction. Those in the folio volume are all good : and it is perhaps useless to protest against their great size. Half the size would have served equally well, and would have been far easier to handle and consult.

On a previous occasion, I dealt at some length with the care and patience which these important excavations have required. This volume raises another point. The whole interpretation of the vast body of evidence from the Numantia district, which covers the contents of volume III as well as volume IV, is a task of great delicacy, especially in the connexion of archaeological and literary evidence. It is not always possible to forge a link between the two that will bear the strain of criticism. In other words, not one interpretation alone is possible, but several alternatives. Dr Schulten, immersed in the problem for many years, as no one else has been, has formed his own view of the probabilities, and has not hesitated to state it. It is, however, stated without undue stress or dogmatism, and the careful reader of the book is able to pick his way among the evidence, without being influenced unduly at points where the connexion is thin. This will induce him to give all the more weight to Dr Schulten's interpretation where it is indubitably right. Meanwhile, the archaeological sequence will stand, and with it all the structural details which have been discovered. This is the real importance of the work : nowhere else will the student find detail of the same kind, and it is not too much to say that it opens an entirely new prospect to the historian of the Roman Army and of ancient civilization. The work is a classic, and will remain so for as long as Roman studies continue to interest mankind.

I. A. RICHMOND.

FORMA ITALIAE : Regio I, Latium et Campania : volumen I, Ager Pomptinus : pars prima, pars secunda. *By* G. LUGLI. *Published by Danesi* (*Rome*) *for the Unione Accademica Nazionale.* 1926, 1928. *pp.* xxvi *and* 218, xiv *and* 75, 320 *and* 150 *lire.*

The magnificent work of which these fascicles are the first two instalments modestly announces itself as a preliminary topographical study for the Italian section of the *Forma Imperii Romani*, the great map of the Roman Empire which is being promoted by the *Union Académique Internationale*. The *Forma Imperii Romani* is to be a small-scale map ; but an archaeological map on a small scale—like any other small-scale map—is of little value unless it has been reduced from an original on a considerably larger scale. The Italians therefore decided to make a new archaeological map of Italy on a scale of 1:50,000

(roughly corresponding to our scale of one inch to the mile), with special areas shown on a scale of 1:25,000 ; falling back on the scale of 1:100,000 in districts where archaeological material should prove scanty.

This project took solid shape in 1923, when six learned bodies in Italy combined to form the *Unione Accademica Nazionale*. This newly-formed association took over the plan of a *Forma Italiae*, with assistance from the Ministry of Antiquities and Fine Arts, and divided up the ground on the basis of the divisions between the sheets of the 1:50,000 map. Italy as a whole is divided into the eleven *regiones* of Augustus, of which Latium and Campania is the first to be dealt with. The first volume is to consist of three parts : Terracina, Circeii, and the main tract of the Pomptine Marshes as far north as Sezze. The parts here noticed are those describing Terracina and Circeii.

Part I begins with a general outline of the history of Terracina, or Anxur, from the earliest times : first as a prehistoric town resembling a *terramara* in plan, then as a Volscian walled stronghold, captured by the Romans in 406 and converted into a Roman colony ; undergoing a period of stagnation in the later Republic but enlarged by Sulla, and awakening to new life under the Empire. The great road-building and harbour-making works of Trajan and Antoninus Pius are of special interest ; the circular harbour nearly a quarter of a mile in diameter, now silted up but projecting boldly into the sea like a huge bastion, is a fine monument to the prosperity of southern Latium in the second century, a period in which the town seems to have spread in every direction. The early third century still shows a similar activity in the building of roads, a new forum, and so forth. At the close of the ancient world come the fortifications which Sig. Lugli ascribes to Belisarius.

Part II describes the isolated mountain of Circeii, that juts out into the sea at the far-away southern corner of the Pomptine Marshes—the legendary home of the enchantress Circe, and the site of a temple of Venus, to whom, it has been suggested, the mountain was thus dedicated because of its extraordinary beauty. Here again there is an ancient town whose history and topography are described in detail ; but the chief interest of this part is in the account of the ruins by the lake at the foot of the mountain, which Sig. Lugli shows to be not the remains of Circeii itself, transplanted to the shore of the lake in the Imperial period, as had hitherto been thought, but the ruins of a villa belonging to the Emperor Domitian.

Both parts are copiously illustrated—together thay have about 350 illustrations—with maps, plans, drawings, and photographs, including some excellent air-photographs. The descriptions are terse and businesslike, without a word wasted, and it is impossible to read them without admiration for the vigour of a people that dares embark on so gigantic a survey of its own antiquities, and for the skill and thoroughness with which Sig. Lugli has already accomplished an appreciable fraction of the task.

R. G. COLLINGWOOD.

SOUTH AFRICA'S PAST IN STONE AND PAINT. *By* M. C. BURKITT. *Cambridge, at the University Press.* 1928. *pp.* xiv, 183, *with frontispiece,* 8 *plates, map,* 30 *figures.* 12*s* 6*d.*

Hitherto we have had only a few comprehensive general books dealing with the prehistory of South Africa. Foremost, of course, is Péringuey's publication,[1] which

[1] *The Stone Ages of South Africa as represented in the Collection of the South African Museum* (Annals of the South African Museum, VIII, 1911).

brings together a mass of most valuable material—unfortunately however so badly arranged that to obtain from it any idea of the true order of development is almost impossible. The works of J. P. Jones, including the latest,[2] doubtless mark an advance, but Jones had too strong a tendency to find represented in South Africa only those cultures known in Europe during the late palaeolithic period. For many, too, of the facts his interpretation was wrong.

We must therefore give a warm welcome to Burkitt's small but very important work—the fruit of his studies during a long tour in South Africa—on the cultural development of this district during the Stone Age, the site before now of such rich material for finds. Burkitt writes for a wider public, and therefore includes some introductory chapters; these however even the specialist should not entirely omit, for on pp. 16ff there is in outline a scheme of the cultural chronology of South Africa which is fundamentally important for the author's point of view. The material evidence is contained in the definitely archaeological chapters of the book, with more circumstantial detail. Here we learn that the South African *coups de poing* are entirely representative of an early palaeolithic epoch, not a later type of the Campignian pattern, as has lightly been assumed in recent times. There is also evidence of the influence of a Mousterian type of culture. While the older Stone Age development shows a close analogy to that of Europe, the later is entirely divergent from it. Burkitt is next able to establish a cultural stratum which is closely allied to the middle Capsian; its connexion with North Africa has also been shown already by some of the finds made by Leakey in Kenya Colony. Burkitt considers that the Still Bay industries, the most striking implements of which are the laurel-leaf types, also represent an older late palaeolithic culture. His view is that we have here to deal with a localized evolution of a retarded Mousterian type, under the influence of later palaeolithic culture, and consequently—for of course an immediate connexion is out of the question—with an apparent parallel with the Solutrean culture of Europe. He takes the opportunity of inquiring into the cause of this parallel development, but is unable to provide an explanation. I believe that I found the solution of this problem some time ago[3]; my opinion is that in all cases where there is evidence of the laurel-leaf type of point, there is a fusion of the two opposing streams of stone-industries, namely those producing flakes and cores respectively, of which the first employs chiefly single-sided flaking, the second double-sided. It is a blot on the penetration of investigators into the earliest cultural history of man that they wrongly considered these two basic forms of stone-working to occur not only in the older palaeolithic period, but also in the later. In the laurel-leaf points the flake-technique of the one is constantly combined with the double-sided working of the other form of stone-flaking, and in this they are clearly recognizable as hybrid products. Since in the Congo and Uganda rich finds of an entirely core-working industry are in evidence (belonging to the end of the later palaeolithic period), it is easily possible for their influence to have extended to South Africa.

Burkitt proceeds to discuss the Wilton, Smithfield, and kitchen-midden or 'Strandlooper' cultures; all three are quite clearly very ancient and may well go back to the end of the later palaeolithic period (the so-called mesolithic); but on the other hand they obviously lasted into the recent historical period. This is very apparent from Burkitt's investigations. He would like to regard the kitchen-midden culture, which shows close

[2] *The prehistoric period in South Africa* (London, 1912).

[3] *Die Tumbakultur am unteren Kongo* (*Anthropos*, 1925, xx, 516).

kinship with the Wilton culture, as an independent type. But as far as one can assume from the published accounts I conjecture that it is more likely to represent a decadent Wilton culture, though in their earlier stages, of which too little is known, the two may have been identical. On its own side, the Wilton culture shows so close a connexion with the late Capsian period of North Africa that there can be no doubt of its descent from this. It is remarkable that Burkitt does not venture to state this, for he must have observed it. Since the Wilton culture is the industry of the Bushmen, it is accordingly demonstrable that the Bushmen are connected with the late Capsian peoples—and there is nothing surprising in this if we remember for example that in the late Capsian kitchen-middens of Portugal only skeletons of a pygmy type have been found. Burkitt's circumstantial account of the South African rock-paintings appears in striking agreement with this. For it cannot be doubted that these, in their early stages, are closely connected with the east Spanish art group ; in their later development localized decadence is obvious. Something of an enigma is provided by the Smithfield culture, which has its home in the Orange Free State. Burkitt rightly views it as contemporary with the Wilton culture, for the distribution of one excludes the other. He takes it to be a Mousterian survival, though naturally he is not positive, for he has not failed to observe its relationship with the neolithic period in Egypt.

In a brief résumé such as this one cannot possibly examine more closely the writer's invaluable researches into the ages and groups of South African rock-paintings and engravings ; it is to be noted that he is the first to make adequate observations of the stratification of the series of pictures. Enough that we have here *the* book that science has needed. For the first time the prehistory of South Africa is comprehensively viewed, with the methods and vision that we have been accustomed to expect for that of Europe. There are also many gentle hints to South African students. We hope that the book is the precursor of a new and fruitful period of inquiry into African prehistory.

OSWALD MENGHIN.

THE PLACE-NAMES OF THE NORTH RIDING OF YORKSHIRE. *By* A. H. SMITH. *English Place-Name Society*. Volume v. *General Editors:* A. MAWER *and* F. M. STENTON. *Cambridge : at the University Press.* 1928. *pp.* xlvi, 352 *and map.* 20*s.*

Dr Smith's book is characterized by the same excellent qualities as its predecessors, the monographs on Buckinghamshire, Bedfordshire and Huntingdon, and Worcestershire. A vast number of early forms are adduced, which in this case appear to have been collected by the author himself, a very laborious and time-absorbing task involving great care and attention, not least where identification is concerned. The forms have been collected not only from printed but also from numerous manuscript sources. Topographical features are duly considered, and the local pronunciation of many names has been ascertained.

The book claims a special interest as it is the first publication of the English Place-Name Society that deals with a county where there are numerous Scandinavian settlements. A large percentage of the names, especially such as denote small homesteads, are of Scandinavian origin. The most usual terminals are *-by* (about 150) and *-thorpe* (about 36), often with Scandinavian personal names for their first element (Ainderby Aislaby, Brandsby, Grimsby, Ormesby, Mowthorpe, Kettlethorpe, Ugthorpe, etc.) ***Thwait***, ***lund***, ***beck***, and ***dale*** are also very well represented. The prefix is Scandinavian

in about one-fifth (44) of the names in *–ton*. Uppsala (Sweden) has an exact equivalent in the township of Upsall.

When the place-names contain well-known personal names or topographical elements the author hardly ever fails in establishing their true meaning. He also shows great ingenuity in unravelling many of the obscure names; which, however, are far less numerous here than in the southern parts of England. Dr Smith has had some valuable assistance from Dr H. Lindquist, the Swedish expert on Scandinavian names in England, and in particular from Professor Ekwall, who has contributed numerous solutions of difficult names. To my mind Ekwall is, however, apt to suggest etymologies which are not supported by any analogies and for this reason very hypothetical (cf. Ruston 100, Hackness 112, Skutterskelfe 175, Tripsdale 69, Cotescue 255). It seems to me a good policy to avoid as far as possible topographical nonce-words; in other words we should not try and account for what is unaccountable with the given premises. Speaking of the unaccountable I notice that Dr Smith shares the editor's predilection for postulating doubtful personal names when no other explanation of a place-name has offered itself. To this category belong some of the personal names with one star, in the list on pages 321–2 (*Fīn*, *Morta*, *Pīcer*, *Strēon*, to mention no others), and practically all those which are marked with two stars. The latter group is correctly defined (*ib.*) as names 'for which no such (*i.e.* corroborative) evidence can be found', a very good definition indeed. In my earlier works I have also sinned in this respect, but I am now trying to mend my ways. Professor Skeat, with all his excellent qualities, was the originator of this evil (which was also much abetted by W. H. Stevenson's erroneous but often repeated assertion that a common name could not take the *s–* genitive in a place-name compound). When this malignant form of *onomatitis* has been cured more definite results will be obtained as to the meaning of many names. On page 261 a number of medieval personal names are paraded ending in *–us* (*a*) some of which look like latinized forms. Anyhow a suffix *–us* is utterly inconceivable, as there are not even any safe instances of English personal names with either *s–* or *r–* suffixes (cf. my papers in *Finnur Jonson Cel.*, and in ZONF, IV, p. 295). The t- suffix (Sompting, Suss. etc.) is also a mere fiction, as will be shown in a forthcoming paper in ZONF, V. The volumes of the English Place-Name Society contain so many excellent things that the editors can very well afford the luxury of some restraint in attempts at explaining names to whose meaning there is no safe clue. In the publications of the Swedish Royal Place-Name Commission, directed by experts of no mean capacity, any number of place-names are left without an etymological explanation.

Consideration of space forbids a detailed discussion of etymological questions. I will confine myself to a few cases where the etymology suggested is not borne out by the evidence of the early forms.

The consistent occurrence of *ar–* in later spellings prove the DB form *(H)erleuestorp* for Allerthorpe Hall (p. 225) to be deceptive. I interpret the name as OE *Earnleahþorp*. (Such triple compounds are Hindlethwaite p. 254, and Wensleydale, p. 246).

Malton (p. 43) cannot very well contain OE *maeȝel*, speech. The 12th cent. form *Madaltune* for Melton on the Hill (YWR) otherwise *Medeltone*, *Middeltun*, *Methylton*, is evidently an A–FR spelling with pretonic *a* for *e* (very usual in early records). I take the prefix in Malton to be either OE *mael*—'a cross' (for the phonology, cf. Startforth, p. 304, 'the street-ford', with numerous early spellings with *a*) or, which is even more probable, W moel, 'a hill'. Eae Keltic *ē* is usually rendered with e in OE but *ǣ* occurs occasionally, as in *Maelanbeorh*, ME *Malle–*, OE *penceat* (Zachrisson, *Romans*, 50ff) and

Malvern (EPNS, IV, 210). Malton is situated on a hill where there is also a Roman fort.* *Meuton*, *Mealton* and *Miauton* are A–FR spellings of Melton (cf. Zachrisson, *Anglo-Norman Influence*, p. 151, and *Beause*, *Biause* 1227, 1228, CH. R.I. for Bexhill, Sussex). No safe etymological conclusions can be drawn from *Maalton* in Symeon of Durham, the early medieval chronicles being notorious for their erratic spellings of place-names and personal names. The same document has *Theostcota* for Tocketts (probably for *Tofescotum*, Scand. *Tofi* with the English genitive).

Dr Smith's identification (p. 250) of the first element in Jervaulx (*Jorevall*, *Gereuall*) with the OE river-name *Earp* is phonetically inadmissible. Equally improbable is Ekwall's recent interpretation of *Earp* as *Ear p'* = *Ear wæte* for *Eor wæter* (*River-Names*, p. 428). For an explanation of Ure, Jervaulx and *Earp*, see my paper in MLR, vol. 21. I may add that *Earp* is hardly identical with OE *eorp*, ' dark ', but with the G river-names Erpe, Arfe, Arpe (Förstemann ; Witte, 144), which are either Keltic or contain OG *arp*, ' dark '. Ekwall (*op. cit.*) follows Bradley in deriving *Ior* from OE *Eor* (Rom.-Br. *Isurium*, the old name for Aldborough), but fails to adduce any parallels to a development of *Eor* to *Yor* and *Yer* instead of the normal *Er*, whereas both these forms (ME *Ye(ve)r*, ON *Jor*) are easily accounted for if we take the base to be OE *Eofer*, a back-formation from *Eoferwic*. The parallelism *Yerk : Jorvik* and *Gerevall : Jorevall* is particularly instructive. Contrary to what is maintained by Ekwall, the Ouse is called Ure at an early date by both Camden and Leland. It would be interesting to know what parallels Ekwall can adduce to Scand. *jo* for OE *eo*, apart from *Jorvik* for *Eoferwic*, which is a case of either combinative Scand. sound-development or of a Scand. name-element having been substituted for an English one, as in *Iat-* for *Ead-*. In the East and North Riding there are at least three places containing OE *eofer* (Everley, Yearsley, Everingham), which never exhibit *Yover-* in the early spellings (only *Ever–* and *Yever–*). Ekwall's explanation of the name involves no less than three conjectures of which two (OE *Earp* = †*Eor wæter*, and ME *Eor– Jor*) are improbable.

In the Introduction Dr Smith draws many valuable and instructive conclusions from the place-name material. He comments upon the scarcity of British place-names, which he thinks were displaced by the twofold settlements of Danes and Norwegians. It is a fact, however, that British place-names are scarce in all those parts of England which were settled at an early date. The reason for this is that the remaining native population was rapidly absorbed and amalgamated with their English conquerors (cf. Zachrisson, *Romans*, 63ff). In Lancashire and in the West Riding, which were conquered at a later date, British place-names are naturally much more common.

Dr Smith follows E. Thurlow Leeds in assuming that the Anglian settlements in the North Riding date from about the year 500. Against Ekwall (Place-names in *–ing*, p. 115) he correctly remarks that the existence of names in *–ing* and *–ingham* should not be rigorously interpreted in Yorkshire as proving settlements before the year 600. In the North Riding they are scattered all over the country. They are also found in the western parts, which were certainly settled later than the central and eastern parts. This bears out my conclusion (*Engl. Stud.*, 62, p. 83) that these names are of little value for minute chronological date. That the burial grounds at Saltburn and Robin Hood's Bay represent a separate Anglian settlement is possible, but not very likely.

With our present knowledge the evidence of personal names must also be used with

* See Dr Kirk's account of Roman Malton, ANTIQUITY, II, 69.

† On Walton, etc., and Scotton, see Zachrisson, *Romans*, 41, and ZONF, II, 143.

great caution for chronological purposes. Nearly all the ' old personal names ' mentioned by Smith (*Streon*, *Hofa*, *Eaden*, etc., p. xix) are extremely doubtful.

The actual evidence for early place-names being situated on Watling Street is somewhat scanty. Anyhow, Kiplin, Barningham, and Thornborough are not situated *on* Watling Street.

A very interesting and difficult problem is the distribution of certain place-name types in the East and North Riding as compared with the West Riding and Durham and Northumberland. This problem is also dealt with by Mawer in a very valuable paper, *Yorkshire History* (Leeds, 1924). The facts are as follows. The suffix *–ham* is rare in the whole of Yorkshire. The element *worth* is common in the south-east of the West Riding and in Durham, but is found only once in the East and North Riding, respectively. *Field*, *land* and *ley* are rare as place-name suffixes in the East and North Riding but common in the West Riding and in Durham. It has been suggested that this state of things, especially the scarcity of *worth* in the East and North Riding, is due to the displacement of Old English names with Scandinavian ones. We know for instance that *Norþweorpig* was displaced by Derby, and *Streones heal* by Whitby. I am not convinced this is the right explanation. In the strongly Scandinavianized districts of Lincolnshire *–ham* is quite common, and *–worth* is fairly well represented. Moreover the majority of old parish names in the North Riding have English names. I believe that the state of nomenclature we have just discussed was characteristic of the earliest Anglian settlements north of the Humber, which comprised only the East Riding and the North Riding. At an early date, this district formed a geographical unit bounded by fen-lands and large wooded districts. To what extent the problem is connected with the settlement of the West Riding and Bernicia, which to judge by archaeological evidence (Leeds) certainly took place considerably later is a question which cannot yet be answered. In the West Riding at any rate we have to count with considerable Mercian settlements. The most usual English name-element in the North Riding is *–tun*, which, according to Dr Smith's calculations, occurs in no less than 250 names, of which only one-fifth part are distinctly Scandinavian. The peculiarities of the local distribution of names are illustrated by the fact that *ley* is common in the forest area round Hackness and Wensleydale, whereas no such names are known from Bulmer (the Forest of Galtres).

The Scandinavian settlements in the North Riding are discussed in detail with numerous apt and interesting illustrations. Concerning the distribution of Scandinavian and Norwegian settlers Dr Smith is of the opinion that the Danish settlement (*c.* 876) was confined to the fertile central and southern parts of the North Riding, whereas the Norwegians (from about 900) settled chiefly in Ryedale, Whitby Strand, Cleveland and Teesdale, and in Richmondshire. The Norwegians tended to avoid the districts occupied previously by the Danes. The majority of Norwegians came over the Pennines from Cumberland, although there may have been an independent settlement from across the North Sea in the north-east.

In a paper in *Revue Celtique* (xliv, 43) Dr Smith has given a detailed account of such names as point to Irish-Norwegian settlements in Yorkshire. They are very numerous in the western parts of the North Riding, but several instances also occur in the West and East Riding.* Dr Smith may be quite right about the *main* features of the Norwegian settlement, but according to my view he is inclined to understate the Danish settlements,

* Hillgrim (WR), Hillbraith, Miregrein, Sawcock (NR) are not looked upon as inversion-compounds by Ekwall (*Studies till Atelkock*, p. 218).

which seem to have extended all over the country, although it was greatest in the central and southern parts. Place-names in *–thorpe* are evidence of Danish settlements, probably also place-names in *–by*, when they occur together with *thorpe*-names. There are three names containing *thorpe* in Hang East, and one such name in Gilling West.

Things are not different in Langbargh East, with four *thorpe*-names and numerous *by*–names (among those Danby). Distinct Norwegian names in Langbargh East and Whitby Strand are mainly confined to minor places of little importance. The Norwegian settlements were very considerable in the west of the North Riding, where vast tracts of country had not been occupied by the Angles and the Danes. In other parts, especially in the east, they were a mere layer superimposed on the already existing Anglian and Danish settlement. In support of this it may be pointed out that not only Yorkshire but also Cheshire was included in the Danelaw and that there were considerable Danish settlements as far west as Lancashire.

Taken all round, Dr Smith's book is a very valuable contribution to our knowledge of English place-names. The author has shown sound judgment, considerable skill as an etymologist, and a vast working knowledge in all departments of the English place-name study. R. E. ZACHRISSON.

THE PASSING OF THE FRISIANS: anthropography of Terpia. *By* DR D. J. H. NYESSEN. *The Hague, Martinus Nijhoff.* 1927. *pp.* 296 *and* 49 *illus.*

The author of this work has paid us the compliment of writing in English, but, alas, he has failed to consult any literary Englishman, with the result that it is often extremely difficult to see what he means. Imperfect English is all very well on a notice in a hotel but it becomes wearisome in a scientific book. The first 99 pages are devoted to a general survey of Frisians and of the literature on their anthropology. The survey is very critical and does not altogether do justice to the previous writers on whose foundations after all modern anthropology has been built. Then there follows an analysis of the material on which any knowledge of the racial history of the Frisians must be based. It is very small, apart from measurements on the living, under 500 skulls, but the physical anthropologist must often be content with a little material. The author has pooled his males and females together in some of his tables, although in more than one place he draws attention to the importance of distinguishing between the sexes. This is particularly unfortunate as his tables are otherwise unusually well arranged. A careful reading however of this section of the book makes one wonder whether the game is worth the candle. There are endless tables of every possible measurement, there are comparisons of the Frisians with most peoples under heaven, there is evidence of an infinite capacity for attention to detail. At the end of it all not only is the professional anthropologist lost in this sea of detail, but the archaeologist interested in the ethnological problems, if he reads as far without yawning, may well wonder what it is all about. Fortunately the author at the end of his chapter on conclusions tells us (the italics are his not mine):—*The difference between the present-day inhabitants of the Western and Eastern provinces, and also the brachyzation of the former, may in a great measure be explained by the contact that has existed so long between the pure Nordic population of the Holocene, and the more mixed inhabitants* (?of) *the Pleistocene.* We read further "The brachyzation is not phaenogenetic, but idiogenetic, and the result of the intrusion of allochthonous brachycranics". It is my pleasure and privilege to know quite a number of archaeologists and I should, I fear, almost certainly run the risk of losing their friendship if I

recommended that they should read matter of this type. It is a great pity; the author seems to have done a useful piece of work, but his method of presentation is so unsatisfactory as to detract overwhelmingly from its value. If only he had said what he had to say, had got an English friend to read it over, and finally had put his tables into an appendix we might have had a really useful book. In contrast to the muddle of the text the diagrams are extremely clear and the illustrations excellently reproduced, although all the skulls do not appear to be oriented on the same plane. L. H. DUDLEY BUXTON.

THE PALACE OF MINOS AT KNOSSOS. *By* SIR ARTHUR EVANS. Vol. II, parts 1 and 2. *Macmillan.* 1928. *pp.* xxii, xiv, 844. *Coloured plates* viii–xiv, *supplementary plates* xii–xxxi, *plans* A–C, *and* 559 *figs.* 147*s.*

Sir Arthur Evans' work in Crete has deservedly won a world-wide reputation. He first showed by patient research that the prehistoric inhabitants of Crete and Greece had developed a system of writing, a pre-Phoenician script. Then by excavations at Knossos he proved, as Schliemann long ago had suspected, that the Bronze Age civilization of the Aegean had its beginning and developed in the main from Crete and so demonstrated at once the amazing richness and high standard attained by the Minoan culture. Nor is this all, for by coordinating in a series of learned discussions the results obtained from the various excavations in Crete carried out by scholars of half a dozen nations he has shown clearly that Crete owed much to Egyptian influence if not to actual Egyptian colonization in the early Minoan period, soon after the beginning of the Bronze Age. The general results of the discoveries in Crete are of such high importance that they should rivet the attention not only of classical archaeologists, but of all who study the beginning of European civilization. Thus the appearance of the second volume of Sir Arthur Evans' monumental work dealing with the principal characteristics and the general evolution of the Minoan civilization in Crete and of its reciprocal contacts overseas in Egypt, Asia Minor, the Greek mainland, and the west as viewed from the Daedalic Palace of Minos at Knossos is a fact which cannot but excite profound interest.

Six years have elapsed since the publication of the first volume, in which Sir Arthur carried the story of the Minoan civilization from the Neolithic Age down to the close of the Middle Bronze Age at the end of what is called archaeologically Middle Minoan III. The second volume does not continue the story immediately, but is divided into two parts. The first begins by detailing new information obtained by recent excavations of about the Neolithic and Early Minoan periods, more especially of Egyptian relationships and colonization. In pursuit of this a great road running across the island from Knossos to a port on the Libyan Sea is traced. In this context subsidiary discoveries made outside the palace, such as the 'Caravanserai' and the stepped portico are discussed and illustrated. Next follow the amber route and Iberic, Britannic, and Maltese relations and the connexion with the Egypt of the Middle Kingdom. This leads naturally to the harbour town of Knossos, and the first part closes with a discussion and description of earthquakes, for the ruin of Knossos towards the end of the Middle Bronze Age is probably to be attributed to such a convulsion of nature. The second part deals with the important houses that lie close to the palace and the area of the town of Knossos in general. It then proceeds to treat in detail the porches and entrance corridors of the palace, especially in the west section which was restored after the great earthquake.

This brief conspectus cannot give any true idea of the scope and contents of the book or of the great number of different subjects dealt with in these seven hundred odd pages. The subtitle, 'A comparative account of the successive stages of the early Cretan civilization

as illustrated by the discoveries at Knossos' is after all its best description. It is in reality not so much a detailed scientific account of the results of the excavation of the Palace of Minos at Knossos as a comparative account of some phases of the Minoan civilization as revealed by the excavations of the palace. This comparative material, especially that from the parallels from Egypt and Libya, and from other sites in Crete where Mallia and Nirou Khani in particular are discussed, is extremely valuable and in the author's happiest vein. Particularly noticeable is the elucidation of the frescoes where subjects so diverse as hydrostatics and botany are made to render full service to a most important commentary. Naturally enough, even in a volume of this size, many aspects of Knossos have to be left untouched, so complex are the ruins and so numerous are the fragments of fresco, pottery, ivory, bronze, and other materials. The book thus cannot be compared with the elaborate German publications of excavations such as Olympia, Pergamon, or Miletus, or the detailed French publication of Delos. The author's strength lies in the commentary with which he illuminates things he has discovered, and here his wide archaeological knowledge of many lands and close observance of points of detail is well distinguished. There are, however, various points which it is easy to criticize, and though criticism is inevitable it should not distract attention from the brilliant services which the author has rendered by his excavations. The very character of the commentary, especially in regard to the tracing of the road to the south, breaks the chronological scheme adhered to in the first volume. A large number of the illustrations give no indication of the size of the objects they represent, which is especially needed in the comparative illustrations of vases as in fig. 250 on p. 429. There are practically no sections to elucidate the complicated strata of the site. There should be a series of sections drawn in various directions across the *tell* of the palace. Individual areas, as for instance the South Porch where the stratification is important or is obscured by modern rebuilding, should be described with the aid of complete sections. The rebuilding also makes the provision of stone-for-stone plans an urgent necessity, in accordance with modern scientific archaeological practice. Some modern archaeologists would also object to the 'wager system' of excavation as unscientific. Some blocks, *e.g.* fig. 43, are not up to standard; the architectural restoration in fig. 75 contains a serious error and fig. 82 is rather too conjectural. The remarks about the absence of central hearths in Middle Helladic houses on p. 21 are contradicted by the evidence from Eutresis and Lianokladi and in the discussion on sling bullets (p. 345) a reference to the stone and terracotta examples so common in prehistoric Thessaly should have been given. And it must be confessed the bull's-head rhyton from Pontus (p. 659) seems more likely to date from the sixth than from the sixteenth century.

We hope that the learned author will soon issue his remaining volumes and with them the index which is such a crying need to the 1565 pages of the first two volumes. He has given so much here that he tantalizes his readers who greedily ask for more and more.

A. J. B. WACE.

ROYAL COMMISSION ON THE ANCIENT AND HISTORICAL MONUMENTS OF SCOTLAND: the Outer Hebrides, Skye and the small Isles. *H.M. Stationery Office.* 1928. *pp.* lvi, 230. 32*s* 6*d.*

This volume is a worthy addition to the literature of State archaeology. Its compilation has involved more venturesome journeyings than normally fall to the lot of the British archaeologist, for not only did its authors take advantage of a chance visit by Captain Patrick Grant to St. Kilda but they themselves, amongst other exploits,

voyaged to the remote island of North Rona. ' Here and at the Flannan Isles a landing cannot be guaranteed even in comparatively fine weather. The conditions happened to be favourable for a brief visit to Rona, but the neighbouring island of Sula Skeir had to be omitted '. Even under suitable weather-conditions in these wild outlands it was not always found possible to overcome difficulties of transport. ' Many island sites . . . could not be reached for lack of a boat, and their precise character was therefore left undetermined '. Nevertheless Mr Graham Callander and Mr J. M. Corrie, with certain of the Commissioners, have succeeded in bringing together a substantial and adequately illustrated volume, and have sufficiently determined at least the main characters and distribution of the various types of ' monument '. The volume has been well produced by the Stationery Office, but is excessively costly.

The distribution of the population of the islands has differed little, save in local detail, from prehistoric times to the present day. It is closely determined by the masterful geology of the islands and by the prevalence of a rigorous Atlantic climate. The able and concise introduction rightly begins with a clear summary of the geological setting ; it then proceeds to outline the history of the islands, and subsequently to epitomize the principal groups of their archaeological remains.

The chambered cairns begin the series. They are presumably of the late neolithic period or early Bronze Age, and are either elongated (in which case they occasionally approximate to the ' horned cairns ' of Caithness) or circular. Of the circular variety over forty examples are noted, including two which appear to be still intact, with diameters of 80–90 feet and a height of no less than 18–20 feet. Here is an opportunity for Scottish archaeology ! The *circular* chambered cairn or barrow (as distinct from the Bronze-Age round-barrow) is only just coming into its own in Britain, and the scientific exploration of two or three intact specimens in the north is badly needed. Amongst other megalithic monuments, pride of place is naturally given to the famous circle of Callanish on Lewis, though several other stone circles are also recorded.

Defensive sites are divided usefully into five categories. The first is that of promontory- or contour-forts defended by dry-stone walls containing galleries or passages. From these are derived the circular towers of ' brochs ', which were used during the first few centuries of the present era, perhaps (if the scarcity of associated relics be taken at face-value) rather as occasional refuges than as permanent dwelling-places. The broch of Dun Carloway on Lewis survives to a height of 30 feet. Into a third and fourth class are grouped un-galleried promontory forts of unknown date and a series of rather miscellaneous coastal forts, often of promontory type. The fifth class consists of forts on islands in lochs, generally approached from the mainland by a built causeway. Amongst these are *duns* consisting of a stone wall round the periphery of an island, enclosing a rectangular building probably of medieval or later date.

Whether any of these classes of defensive structure can be ascribed to the Vikings is at least doubtful. The writers of the Introduction observe further that ' we can hardly escape the conclusion that there is no building of stone in the Hebrides that can be definitely attributed to the Norse immigrants '. This is the more surprising since the Norse occupation was an episode of the highest importance in the history of the Western Islands. It lasted for more than four and a half centuries, and has left a palpable witness in the majority of the island place-names. More material relics are hard to find, and it is inferred that the Vikings brought with them their native practice of employing only wood, which has of course long disappeared. A few runes on a stone otherwise of Celtic character are thus the only monument of the Norse régime, unless we include a few

' small finds ', notably the famous sword-hilt from a Viking burial on Eigg. This hilt and a number of elaborate tortoise-brooches, etc., just suffice to confirm Dr Brøgger's view that the Viking migration to the Southern Isles was that of the wealthy and independent nobility which was squeezed out of Norway by the autocratic ambitions of Harold Fairhair ; in contradistinction to the poverty-stricken emigrés—Norway's superfluous failures—who had earlier found a refuge in the nearer Northern Isles (Orkney and Shetland).

Medieval and later buildings are numerous but rarely of intrinsic interest. The Commissioners show a praiseworthy reluctance to overestimate the antiquity of these merely on the grounds of their primitive appearance. The only ecclesiastical structure of distinction is the cruciform 16th-century church at Rodil on Harris, which contains a notable series of tombs enriched with remarkable examples of local carving. The fifteen castles are similarly devoid of special interest, save as appropriate features of the landscape. But the importance of the volume rests not so much upon the attractiveness of any particular monument as upon the collective picture which it presents of a rugged landscape populated—and, everything considered, not inconsiderably populated—by a succession of peoples who all in turn received the impress of their rugged environment and, with the remarkable exception of the Vikings, succeeded, in various ways, in expressing it monumentally.

R. E. M. Wheeler.

LA CITÉ PONTIQUE DE DIONYSOPOLIS. *By* Mons. Tafrali. *Paris : Paul Geuthner.* 1928. 40 *francs.*

Mons. Tafrali's book deals with five sites on the Black Sea coast, examined by him in 1920. He devotes most space to a history and discussion of the topography of the ancient Dionysopolis, whose site he identifies with the modern Baltchik. The topographical section is, however, a matter of detailed rather than of general importance. More interesting is the emphasis laid on the close commercial and spiritual relationships which existed between some of these cities of the Hellespont and Egypt. Thus Dionysus who was, as the name implies, the patron deity of the city, is identified with Osiris.

The remainder of the book, apart from a section devoted to the publication of inscriptions from Dionysopolis and Cavarna, deals somewhat summarily with four villages close to Baltchik, on the coast and near the present Bulgaro-Roumanian frontier. Of these Tekke is an interesting monument of the Moslem period. Near by, at Ecrene, stood a castle, now much ruined. Tafrali remains uncertain as to whether it was of Byzantine or Genoese origin, but the latter seems more probable. Cavarna, whence came a number of the inscriptions which are published at the end of the volume, is a Byzantine site of minor importance. More impressive is Kali-Acra, with its fine medieval castle, much ruined even since the days of the traveller Laurens.

Mons. Tafrali's volume is well produced as regards the text, but the numerous illustrations are mostly poor. For a book like this, which is of detailed importance, it would have been better to reduce the number of plates and so also to reduce the price.

D. Talbot Rice.

INTRODUCTORY HANDBOOK TO THE STYLES OF ENGLISH ARCHITECTURE. *By* Arthur Stratton. Pt. I. The Middle Ages. *B. T. Batsford.* 1928. *pp.* 32 *and* 13 *diagrams.* 2*s* 6*d.*

This little handbook consists, mainly, of much-reduced reproductions of thirteen diagrams, prepared for the use of schools and each showing some phase of English

medieval architecture. They are all admirable examples of clean and effective draughtsmanship and, by means of plans, details and perspectives, provide useful examplars for their intended purpose. Accompanying them is a summary account of the evolution of the various styles, which here retain the old nomenclature of Rickman. This account falls somewhat below the standard set by the diagrams ; the Saxon chapter is frankly muddled, and errors have crept into the other sections which might well be corrected in another edition. Thus the Confessor's church at Westminster was not copied from Jumièges, as has been recently proved ; the view of Conway shows the whole town and not the castle only and the leading examples of Cistercian work belong to the 12th rather than the 13th century. A short glossary of terms is printed on the cover.

THE R.A.C. COUNTY ROAD MAPS AND GAZETTEERS. *Cheltenham : Ed. J Burrow.* 1*s* 6*d each.*

This series professes to note ' every object of interest at a glance and how to get there ', and it admirably fulfills its promises. Good printing, a pleasing format, maps which depict all that is relevant and omit all that is not, and a well written text combine to make each volume a cheap necessity for all who use their cars for pleasure. Unlike most guide books, they are written in what may be termed a gentlemanly style : as if the many items of interest were recalled over a glass of port by a genial friend after a leisurely ' tour ' in a chaise and four. The publisher and also the motorists for whom this series is intended are to be congratulated. R. C. C. Clay.

ÜBER DIE HERKUNFT DER ETRUSKER. *By* Hans Mühlestein. *Berlin : Frankfurter Verlags-Anstalt.* 1929.

This brochure of 80 pages and *Die Kunst der Etrusker* are the work of a young writer whose independence and originality are refreshing, even though these qualities are associated with a somewhat overbearing self-confidence. The author begins with the usual rehearsal of the classical authorities from Herodotos to Dionysios, and declares his firm adherence to the Herodotean tradition. He then springs his surprise, when he states that this tradition though true is inadequate and partial. We are invited to realize that all authors ' from Herodotos to Mommsen, from Hellanikos to Schuchardt, from Dionysios to Pareti ' (a row of strange bedfellows !) have erred from one-sidedness. The recognition of this, apparently self-evident, truth, will unquestionably bring the millennium in our studies. And those who remain obdurate will be branded as upholders of *Unilateralitätsdogma.*

It is a quite Rotarian ideal, this sweet union of incompatible opposites, all the various statements as to Pelasgi, with the autochthonous dogma of Dionysios and the Lydian origin as stated by Herodotos. Nevertheless a good many students may be content to remain one-sided if only they can be sure that their side is rightly chosen. Mühlestein cannot sleep until he finds some explanation for the stubbornness of Dionysios, the perpetual recurrence of Pelasgi in the oldest Greek writers, or even the reiterated dogmatism of nineteenth-century historians. Yet a hardhearted reviewer who is little troubled by these familiar phantoms may doubt whether even Mühlestein's formula will effectively exorcise them. Our author feels impelled to postulate not one but three distinct sources for the Etruscan nation. As to two of these many writers are in general agreement with him. Those who accept the Lydian origin of the Etruscan aristocracy freely admit that the yeoman background of the nation was formed by native Italians.

The innovation which is quite unacceptable is the hypothesis of a third element, consisting of Pelasgi, who are arbitrarily named Rasenna and supposed to be an old Aegean people racially akin to the Tyrsenoi. They are brought to the mouth of the Po some centuries before the Etruscans of Herodotos landed on the west coast, and the gradual spread of their civilization is supposed to have paved the way for the Etruscans. That this theory enables the author to explain the statements of Hellanikos and Hekataios is not a sufficient justification for propounding it. Entirely unsupported by any archaeological evidence it is a flat contradiction of all the results so far obtained by excavation. Not until Mühlestein can produce some archaeological evidence of the existence in central or north-east Italy of a pre-Etruscan civilization of orientalizing character will the theory of a third element in the composition of the Etruscans deserve serious consideration.

D. RANDALL-MACIVER.

ITINERARIA ROMANA. *Edidit* OTTO CUNTZ. Volumen prius, itineraria Antonini Augusti et Burdigalense. *Lipsiae, in aedibus B. G. Teubneri.* 1929. 12 RM.

A new edition of the Roman itineraries has long been wanted. The edition of Wesseling (Amsterdam, 1735) was replaced a hundred years later by that of Parthey and Pinder (1848), which is still the standard text. The magnificent folio of Miller (1916) promised much but performed little, and served only to spread errors. Now at last we have the first half of a really sound new edition, based on careful textual and topographical studies by the editor and Kubitschek, who originally intended to issue it in collaboration. All students of the Roman Empire will welcome its appearance, and it deserves the welcome ; for its only fault, so far as I can see, is a somewhat excessive caution in identifying ancient with modern places. In this volume we are given the most important of the itineraries—the Antonine—followed by that curious and delightful document which describes a journey from Bordeaux to Jerusalem, and back to Rome and Milan, in A.D. 333, with notes on the ' sights ' of Jerusalem and Palestine generally.

R. G. COLLINGWOOD.

HOW TO OBSERVE IN ARCHAEOLOGY ; suggestions for travellers in the Near and Middle East. *London : published by order of the Trustees of the British Museum. Second edition*, 1929. *2s 6d.*

This admirable little handbook of 120 pages tells practically everything that one is likely to want to know if one is an intelligent traveller or resident in the East : from what a tortoise-core looks like to the Nabataean alphabet. (We actually met one such recently who had consulted the first edition for both). But it does much more ; it is a compendium of absolutely reliable information about the history of the regions dealt with, and it gives, whenever possible, chronological tables. This leads us to make a suggestion ; would it not be possible for the British Museum to publish a similar handbook consisting of Chronological Tables only ? We know the difficulties, and that the staff is already overworked ; but we feel sure that the attempt would be worth an effort, and the sales prodigious. The fact that this handbook, in its first edition, seems (so far as we can estimate from the probabilities of the case) to have had a sale of not less than one a day since it was published in 1920, proves how great is the demand for reliable information. It is also some measure of our indebtedness to the British Museum and to the Archaeological Joint Committee which suggested the publication in the first instance.

Every reader of ANTIQUITY should buy this book, whether he is going out East or not.

ANCIENT SICYON WITH A PROSOPOGRAPHIA SICYONIA. *By* CHARLES H. SKALET, PH.D. (*Johns Hopkins University Series of Archaeology, no.* 3). *Baltimore, Johns Hopkins Press ; London, H. Milford. pp.* viii, 224, 17 *illus.* 13*s* 6*d.*

Sicyon was commercially and artistically one of the more important Greek city states, but though it flourished in the age of the tyrants under Adrastus, it never attained any political importance even after its refoundation by Demetrius Poliorcetes. Dr Skalet's monograph is therefore welcome since he has here collected in convenient form practically all the information available about the city from ancient or modern writers. He devotes two chapters to the artists, and another to the cults, and has furnished the whole with a prosopographia, a most useful feature. In his history the weakest part is naturally that dealing with the Heroic and Dorian periods, for here so many points are doubtful or debatable. A fuller discussion of the trade and commerce of Sicyon and of the products of its territory, natural and manufactured, should have been included, and a better and first hand description of the geography of the district would have been a valuable help. If the author had been able to explore the site himself, and to survey both the natural resources of the region and the ancient remains, his fresh account of the topography ancient and modern would have been important. Although Professor Robinson read the proofs on the site and provided several useful photographs the topography lacks a proper general map (that given is a revision of Leake's) and plans of the more important buildings, theatre, bouleuterion, etc. These flaws make the author's compilation less useful from the archaeological point of view than from the historical or literary.

A. J. B. WACE.

THE CAMBRIDGE ANCIENT HISTORY. Volume of plates, II. *Prepared by* C. T. SELTMAN, M.A. *Cambridge University Press.* 1928. *pp.* xii, 120, *and* 120 *plates.* 9*s.*

The plates in this volume are designed to give a pictorial commentary to volumes V and VI of *The Cambridge Ancient History*, which deals mainly with Greece in the 5th and 4th centuries B.C. Under these circumstances the figures illustrating Professor Beazley's chapters on Greek art and the sculptures and vases shown are admirably chosen and well reproduced, though some are on too small a scale or rather woolly. The text to these plates is however too short, being little more than an expanded title. There are a few illustrations of architecture, but among these Greek fortifications should have been better and more fully treated as the two views given do not really illustrate any fundamental principles of this branch of military science.

There are a few plates of late Egyptian objects dealing with the Saïte and Ptolemaic periods, but Persian and other Eastern objects of the same time are lacking. The coin plates are well selected and clearly reproduced with sufficient commentary. Though it is easy to criticize such a book as this, it admirably fulfils the purpose for which it was designed to illustrate the text of the History, especially the chapters on Greek art.

A. J. B. WACE.

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A study of the dates, course and character of the Norse migrations that produced the settlements in The Shetlands, Orkneys, and the coast of Scotland. The matter of the volume is drawn from the Rhind lectures delivered last year in Edinburgh.

A TOPOGRAPHICAL DICTIONARY OF ANCIENT ROME. By *S. B. Platner.* 30/- net

This dictionary was planned, and partly compiled, before the war by the American scholar S. B. Platner, who died in 1921. It has been revised and completed by Dr Thomas Ashby who was Director of the British School at Rome until 1925.

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